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Protection of the marine environment through the intensive work of the International Seabed Authority

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Abstract: The present work aims to analyze in a precise and concrete way the work of the UNCLOS concerning Part XI, which established the International Seabed Authority, as well as the work that has been carried out in recent years by the Mining Code for the protection of the marine environment. This is a demanding work that starts from the general principles of the common heritage of humanity arriving at technical, technological fundamental steps towards greater protection of the marine environment and above all within the context of the activities in the area.

Keywords: UNCLOS; law of the sea; international public law; protection of the marine environment; baseline data; deep sea mining; International Seabed Authority; Best Environmental Practice (BEP); Best Available Technology (BAT); OSPAR

Convention; ICJ, ITLOS, ILC; international responsibility; Regulation on polymetallic nodules; Regulation on cobalt sulfides and crusts; DeepData; Environmental Impact Assessment (EIA); Environmental Impact Statement (EIS); Impact Reference Zone (IRZ); Preservation Reference Zone (PRZ); Areas of Particular Environmental Interest (APEI); Environmental Management and Monitoring Plan (EMMP); Environmental Performance Guarantee (EDG); Emergency Response and Contingency Plan (ERCP); good industry practices; Regional Environmental Management Plan (REMP).

Introduction

The main work of the international seabed authority (here in after Authority) we can say that it is not only the granting and management of licenses for exploration but also the exploitation of resources, which has to do with the protection and preservation of the marine environment that is found in the seabed and subsoil, and therefore is subject to national jurisdiction[1].

The Secretary General of the Authority has:

“(…) a broader regulatory role with respect to the protection and preservation of the marine environment (including its biodiversity) (...)"[2].

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[1] United Nations Convention on the Law of the Sea (UNCLOS) concluded on 10 December 1982, entered into force on 16 November 1994, 1833 UNTS. 397. For all the articles of the UNCLOS see the analysis of the book of Pröelss (2017).

According to Art. 145 UNCLOS the Authority was required to adopt the necessary measures for mining operations to avoid causing damage to the seabed of the area and to the related natural resources when the environment and marine zones are identified for the relevant convention, that is connected with the flora, fauna and the general system of ecosystems, that are in a stage of vulnerability. In this regard, the Secretary General of the Authority states:

> "(…) clearly within the responsibility of the Authority to take measures to protect extreme biological communities associated with polymetallic sulfides and cobalt-rich crusts in the Area (...)"[3].

In other words, the ecosystem has to do with the exploitation of resources that requires the actors, who are involved to adapt the related schemes and environmental protection, that are developed in international environmental law (Ginzky, Singh, Markus, 2020).

The present work also aims to give some answers to questions, such as the role of the UNCLOS in relation to the permission and the extraordinary powers that it has conferred to the Authority for the protection of the marine environment that goes beyond the boundaries of national jurisdiction. Also to respond to questions regarding the tools developed as well as the effective measures for the protection of the environment. The conventional framework does not help so much to frame in the area both the sovereignty of the state and the relative exercise of its work.

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[2] International Seabed Authority Assembly, Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea, 7 June 2002, ISBA/8/A/5, par. 52. International Seabed Authority Assembly, Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea, 24-28 July 2023, ISBA/8/A/2.

[3] International Seabed Authority Assembly, Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea, 31 March 2004, ISBA/10/A/3, par. 133.

The techniques, the specific technologies in the sector for mining exploitation are steps that go forward to complete the legal framework under examination. We make a specific analysis of the UNCLOS system but also a further representation of the whole international legal context, that guarantees in a solid way the protection of the marine environment, mineral resources and anthropogenic activities thus contributing to the conservation of areas with scientific and also commercial interest.

The regulatory framework at international level has now made progress also influencing ad hoc regulations in the mining sector but also showing that the time is ripe for greater protection for the marine environment and the evolution of the law of the sea.

The International Seabed Authority towards the protection of the marine environment

The marine environment causes harmful effects in the area of activity. The UNCLOS has established, in this regard, a system that directly obliges to give subjects of international law the related responsibilities. In particular, Art. 145 UNCLOS deals with the adoption of measures necessary to ensure the protection of marine ecosystems as well as with the harmful effects that the activities of the area produce (Noedquist, Grandy, Rosenne, Lodge, 2003). The UNCLOS allows the Authority to control the dynamics of a mineral exploitation in the protection of the marine environment within the perspective of sustainable development, that is, a rich and vulnerable ecosystem for our planet[4].

Paragraph 11 of the Declaration of Principles relating to the seabed and ocean floor and its subsoils goes beyond the limits of the 1970 national jurisdiction[5] through the new Art. 145 UNCLOS. It requires states to adopt measures for the protection, preservation of any marine environment, measures that are valid for marine area activities and for mining. Art. 145 of UNCLOS has allowed and given the relevant power to the Authority, and

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4Scovazzi affirms that: "(…) international organisation which bears the main responsibility to realise a just and equitable economic order of the ocean and seas (…)".

5United Nations General Assembly, Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction, 17 December 1970, A/RES/2749 (XXV). In particular the par. 11 of the Declaration affirmed that: "(...) respect to activities in the area and acting in conformity with the international regime to be established, states shall take appropriate measures for and shall cooperate in the adoption and implementation of international rules, standards and procedures for, inter alia: (a) The prevention of pollution and contamination, and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment; (b) The protection and conservation of the natural resources of the area and the prevention of damage to the flora and fauna of the marine environment (…)".

not as usual at the state level[6], the right, duty and commitment to develop standards for the protection of the marine environment of the area where industrialized countries grant "little discretionary power" (Payoyo, 1997), reducing thus the environmental mandate.

The management of seabed minerals goes beyond national jurisdiction. It adopts the related activity in the area and:

> "(…) activities of exploration for, and exploitation of, the resources of the area (...)"[7].

In this spirit Art. 209, par. 1 UNCLOS (Noedquist, Grandy, Rosenne, Lodge, 2003) has taken into consideration the related procedures to reduce, prevent and control pollution to the marine environment that come from the activity of the area (Salamanca Aguado, 2003).

Furthermore, article 145 provided for the Authority to develop rules, regulations and procedures for

> "(…) (a) the prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities (...)"[8].

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[6] United Nations General Assembly, Committee on the Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Jurisdiction, Norway: Draft Resolution, 24 August 1970, A/AC.138/SC.1/L.4/rev.1, par. 7 (a). Third United Nations Conference on the Law of the Sea, Fourth Session, Revised Single Negotiating Text, 6 May 1976, A/CONF.62/WP.8/rev. 1.

[7] Art. 1 par. 3 UNCLOS.

[8] Art. 145UNCLOS.

The environmental mandate of the Authority thus allowed mining activities under Art. 17 (2) (f) of Annex III to UNCLOS (the Annex)[9] to limit the ratione loci to the environment it protects within the framework of preventing a general alteration, that is connected with the balance of the ecological system.

Art. 145 UNCLOS provides that the Authority shall adopt the appropriate regulations for

> “(…) (b) the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment (...)”[10]

without defining and using in a uniform manner the rules of UNCLOS (Walker, 2012). Thus, we can say that the powers of the Authority:

> “(...) encompass the protection and conservation of every kind of natural resource and all the fauna and flora which can be found in the Area (…) (Scovazzi, 2004) on the seabed of the Area and which, due to the properties owned, may prove to be of particular commercial interest (…)” (Vöneky, Beck, 2017).

It is understood that Art. 145 UNCLOS is not exhausted (Wolfrum, 1990) and creates in a general way a first approach, to which other rules and procedures are also connected.

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[9] Art. 17 (2) (f) of the Annex to UNCLOS refers to the relative regulations and procedures for the protection of the marine environment and activities: “(…) drilling, dredging, coring and excavation (…) disposal, dumping and discharge into the marine environment of sediment, wastes or other effluents (…)”. United Nations General Assembly, Committee on the Peaceful Uses of the Sea-bed and the Ocean Floor Beyond the Limits of National Jurisdiction, lnternational Sea-bed Regime and Machinery Working paper: Submitted by the Delegation of Canada, 24 August1971, A/AC.138/59, para 11: “(…) blow- out prevention and mud circulation systems, casing practices, testing and plugging programs, sea worthiness of platforms and other facilities, recognition of seabed geological hazards in the positioning of equipment, anchoring of drilling vessels and the laying of pipelines as well as the dumping or deposit of harmful material on the seabed and ocean floor (…)”.

[10] Art. 145, par. b) UNCLOS.

Consequently, the Authority through the regulations has the necessary flexibility to adapt to the technological needs that have an impact on the protection measures whenever they have to be used (Vöneky, Beck, 2017).

In this spirit, we recall the relevant regulation for the exploration of polymetallic nodules of 2000[11], where in particular the Authority has put the protection of the marine environment in the foreground, trying to define the rules in a detailed manner. The resolutions of the General Assembly of the United Nations and the law of the sea sustained the:

> "(...) elaboration and standardization by the Authority, pursuant to article 145 of the Convention, of rules, regulations and procedures to ensure the effective protection of the marine environment, for, inter alia, the protection and conservation of the natural resources of the area and for the prevention of damage to the flora and fauna of the marine environment from harmful effects that may arise from activities in the area (...)"[12].

What does the baseline data include and mean?

For mining activities that are authorized by the Authority, the ecological status is presented and collected through data. It is the result of a program of environmental studies that are linked by the baseline data[13]. The related regulations are based on the data[14], which are necessary for the assessment of impacts and activities on the environment (Jaeckel, 2017).

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[11] International Seabed Authority Council, Decision of the Council of the International Seabed Authority Relating to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 13 July 2000, ISBA/6/C/12.

[12] United Nations General Assembly, Oceans and the law of the sea, 31 December 2020, A/RES/75/239, par. 63; United Nations General Assembly, Oceans and the law of the sea, 10 December 2019, A/RES/74/19 par. 63. United Nations General Assembly, Oceans and the law of the sea, 11 December 2018, A/RES/73/124 par. 61.

The qualitative and quantitative variety of the related environmental information have to do with the operators through annual reports[15], and put the related data into practice such as the China Ocean Mineral Resources Research And Development Association and the Japanese Deep Ocean Resources Development, which in practice have not collected particular data (Le Gurun, 2008)[16]. As their main objective they have the transparency of the legal and technical commission. The Authority has communicated the results of the data collection that does not allow to organize precisely the situation of recent years (Warner, 2009).

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[13] Agreement of New York, Annex, Section 1 (7).

[14] According to Art. 32 of the regulation on the exploration of polymetallic nodules, as well as Article 34 of the regulation on polymetallic sulphides and cobalt-rich ferromanganese crusts: "(…) contract shall require the contractor to gather environmental baseline data and to establish environmental baselines, taking into account any recommendations issued by the Legal and Technical Commission pursuant to regulation 39, against which to assess the likely effects of its programme of activities under the plan of work for exploration on the marine environment and a programme to monitor and report on such effects. The recommendations issued by the Commission may, inter alia, list those exploration activities which may be considered to have no potential for causing harmful effects on the marine environment. The contractor shall cooperate with the Authority and the sponsoring state or states in the establishment and implementation of such monitoring programme (…)".

[15] International Seabed Authority Council, Legal and Technical Commission, Summary of environmental work carried out by contractors, 9 March 2010, ISBA/16/LTC/4.

[16] International Seabed Authority Council, Legal and Technical Commission, Evaluation of the annual reports submitted by contractors, 13 August 2002, ISBA/8/LTC/2; International Seabed Authority Council, Legal and Technical Commission, Evaluation of the annual reports submitted by contractors, 30 July 2003, ISBA/9/LTC/2; International Seabed Authority Council, Legal and Technical Commission, Evaluation of the annual reports submitted by contractors, 26 May 2004, ISBA/10/LTC/3; International Seabed Authority Council, Legal and Technical Commission, Evaluation of the annual reports submitted by contractors: report and recommendations of the Legal and Technical Commission, 11 August 2006, ISBA/12/LTC/2; International Seabed Authority Council, Legal and Technical Commission, Evaluation of the annual reports submitted by contractors, 10 July 2007, ISBA/13/LTC/4; International Seabed Authority Council, Legal and Technical

The related results have arrived at the Commission of the Council of 2019 and are limited to the references of a varied situation[17]. Operators have stressed that the lack of a global control that deals with impacts and the operation brings the request for mining exploitation to the final stages[18].

The Commission, through the Recommendations for the assessment of environmental impacts resulting from mineral exploration in the relevant area[19], reiterated in relation to environmental studies that the physical, chemical and geological characteristics of the seabed have to do with the biological and

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Commission, Summary of environmental work carried out by contractors, 7 June 2011, ISBA/17/LTC/L.3/rev.1. International Seabed Authority Council, Legal and Technical Commission, Report on informal consultations between contractors and the Secretariat, Kingston, 9-11 January 2012, 18 April 2012, ISBA/18/LTC/3. International Seabed Authority Council, Legal and Technical Commission, Status of contracts for exploration in the Area, 1 June 2015, ISBA/21/LTC/8/rev.1, parr. 6-7. International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the summary report of the Chair of the Legal and Technical Commission, 23 July 2014, ISBA/20/C/31, para. 10.

[17] International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-fifth session, 11 July 2019, ISBA/25/C/19/Add.1.

[18] International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-fifth session, op. cit., par. 12.

[19] International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area, 30 March 2020, ISBA/25/LTC/6/rev.1.

microbial communities for the environment in which they continue to live through a food chain.

According to the data of 2011:

> “(…) current arrangements within the Authority for collecting and managing data are likely to jeopardize future access and use[20] (...) adopt recommendations to guide contractors on the content, format and structure of annual reports[21] (…) making a distinction for each of the minerals being explored, specifies the information that must be included in the report and provides a system for standardizing geological and biological data (…) environmental and geological data should be submitted in a digital and spatially georeferenced format that is compatible with the Authority’s requirements, using templates published by the Commission (...)”[22].

This is an integrative model, which allows the creation of the Deep Seabed and Ocean Database. It was activated on 25 July 2019 (Nandan, 2007). The platform includes information relating to mineral deposits, ecological conditions for specific geographical areas. These data can be accessible to the public. They are also classified in a confidential manner for regulations that have an exploratory nature[23]. Thus, the collected data are part of the scientific research that through the work of the activity and article 143[24] are promoters of the relative coordination of the Authority that is useful to optimize the efforts but also allow the Secretary General of the Authority to ask the General Assembly of the United Nations to adopt a

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[20] International Seabed Authority Council, Summary report of the Chair of the Legal and Technical Commission on the work of the Commission at its seventeenth session, 13 July 2011, ISBA/17/C/13.

[21] International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of contractors on the content, format and structure of annual reports, 4 August 2015, ISBA/21/LTC/15. International Seabed Authority Council, Legal and Technical Commission, Evaluation of the annual reports submitted by contractors, 13 August 2002, ISBA/8/LTC/2, Annex 1 without any standardization.

[22] International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of contractors on the content, format and structure of annual reports, 4 August 2015, ISBA/21/LTC/15, para. 5.

[23] According to article 36 (2) of the Regulation on the exploration of polymetallic nodules and 38 (2) on polymetallic sulphides and ferromanganese crusts: “(…) and information that is necessary for the formulation by the Authority of rules, regulations and procedures concerning protection and preservation of the marine environment and safety, other than proprietary equipment design data, shall not be deemed confidential (…)”. International Seabed Authority Council, Legal and Technical Commission,

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Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the Area, 13 February 2002, ISBA/7/LTC/1/rev.1, par. 29. See also the paragraph 23 of the International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area, 11 June 2020, ISBA/25/LTC/6/rev.1/Corr.1 affirmed that: "(…) data relating to the protection and preservation of the marine environment, other than equipment design data, collected pursuant to the recommendations contained in paragraphs 24 and 38, should be transmitted to the Secretary-General to be freely available, subject to confidentiality requirements as contained in the relevant regulations (…)". See also article 11 of exploration regulations which is affirmed that: "(…) the Contractor shall transfer to the Authority all data and information that are both necessary for and relevant to the effective exercise of the powers and functions of the Authority in respect of the exploration area in accordance with the provisions of this section. 11.2 Upon expiration or termination of this contract the Contractor, if it has not already done so, shall submit the following data and information to the Secretary General: (a) Copies of geological, environmental, geochemical and geophysical data acquired by the Contractor in the course of carrying out the programme of activities that are necessary for and relevant to the effective exercise of the powers and functions of the Authority in respect of the exploration area; (b) The estimation of mineable deposits, when such deposits have been identified, which shall include details of the grade and quantity of the proven, probable and possible cobalt crust reserves and the anticipated mining conditions; (c) Copies of geological, technical, financial and economic reports made by or for the Contractor that are necessary for and relevant to the effective exercise of the powers and functions of the Authority in respect of the exploration area; (d) Information in sufficient detail on the equipment used to carry out the exploration work, including the results of tests conducted of proposed mining technologies, but not equipment design data; (e) A statement of the quantity of cobalt crusts recovered as samples or for the purpose of testing; and (f) A statement on how and where samples of cores are archived and their availability to the Authority. 11.3 The data and information referred to in section 11.2 hereof shall also be submitted to the Secretary-General if, prior to the expiration of this contract, the Contractor applies for approval of a plan of work for exploitation or if the Contractor renounces its rights in the exploration area to the extent that such data and information relates to the renounced area (…)".

[24] Art. 143 of UNCLOS affirms that: "1. Marine scientific research in the Area

resolution for marine research under the aegis of the organization. Already in 2004 it was recalled to the states

> "(…) individually, or in collaboration with each other or with relevant international organizations and bodies, to improve understanding and knowledge of the deep sea, including, in particular, the extent and vulnerability of deep sea biodiversity and ecosystems (...)"[25].

In the field of scientific research, the Authority has started, through the Kaplan project at international level and after the Clarion-Clipperton fracture, to raise money (Le Gurun, 2008)[26], having as its objective the study of fauna and sediments for the seabed in the province. The use of DNA analysis has allowed the genes of a high number of species to deepen the marine genetic resources.

The Kaplan Project has studied and has had as its object the relative test for the exploitation and deepening of the risks for

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shall be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole, in accordance with Part XIII. 2. The Authority may carry out marine scientific research concerning the area and its resources, and may enter into contracts for that purpose. The Authority shall promote and encourage the conduct of marine scientific research in the area, and shall coordinate and disseminate the results of such research and analysis when available. 3. States Parties may carry out marine scientific research in the area. States Parties shall promote international cooperation in marine scientific research in the area by: (a) participating in international programmes and encouraging cooperation in marine scientific research by personnel of different countries and of the Authority; (b) ensuring that programmes are developed through the Authority or other international organizations as appropriate for the benefit of developing states and technologically less developed states with a view to: (i) strengthening their research capabilities; (ii) training their personnel and the personnel of the Authority in the techniques and applications of research; (iii) fostering the employment of their qualified personnel in research in the srea; (c) effectively disseminating the results of research and analysis when available, through the Authority or other international channels when appropriate (…)".

[25] United Nations General Assembly, Oceans and the Law of the Sea, 17 November 2004, A/RES/59/24, para. 82.

[26] International Seabed Authority Council, Biodiversity, species range and gene flow in the abyssal Pacific nodule province: predicting and managing the impacts of deep seabed mining, 14 February 2008, ISBA/14/C/2, parr. 2-4.

the mining addressing to future plans the environmental monitoring. The information on ocean environments has continued with the Census of Marine Life[27]. It was a project that was funded by the Authority to study the mountain ranges thus promoting the understanding for the functioning of the ecosystems to the identification of the relative gaps that have to do with biodiversity.

The projects are concluded and followed according to the protection of a scientific work as we also see in the Deep Sea Taxonomic Standardization: Strategic Approaches for Collaboration, in 2020[28]. It has as its main argument for the Authority the availability of data that exploit the results achieved in time[29].

The Authority in the mining phase is provided with provisional licenses to collect sufficient environmental data and commercial license[30]. This is a path that the member states and the Council have continued towards the adoption of a regulation for mining exploitation providing for the prefeasibility phase[31].

27International Seabed Authority, CenSeam Project: Assessing Biodiversity Patterns on Seamounts to Identify Knowledge Gaps.

28Workshop on Deep Sea Taxonomic Standardization: Strategic Approaches for Collaboratim: 15 and 16 September 2020.

29International Seabed Authority, Developing a Regulatory Framework for Mineral Exploitation in the Area, p. 41.

30International Seabed Authority, Towards the Development of a Regulatory Framework for Polymetallic Nodule Exploitation in the Area: Technical study n. 11, 33ss.

31 International Seabed Authority Council, Draft Regulations on Exploitation of Mineral Resources in the Area, 25 March 2019, ISBA/25/C/WP.1

Transboundary pollution, prohibitions and rules through the International Seabed Authority's mining code

When we talk about transboundary pollution we mean Art. 194, par. 2 UNCLOS, which refers to the prohibition of transboundary damage and to:

> "(…) all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment, and that pollution arising from (…) activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights (...)"[32].

For the exploration of the no harm rule we refer to the relevant Articles 34 of the code relating to polymetallic nodules and Art. 36 of the regulation for other mineral deposits, which have provided for the operator to adopt measures for the pipelines that cause serious damage for the pollution of the areas and the jurisdiction of a coastal state[33]. The exploitation regulation has highlighted the same obligations for mineral exploration by providing that coastal states can apply for a license when they are in an emergency[34].

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[32] Art. 194, par. 2 UNCLOS.

[33] "(…) Regulations shall affect the rights of coastal States in accordance with article 142 and other relevant provisions of the Convention. 2. Any coastal state which has grounds for believing that any activity in the area by a contractor is likely to cause serious harm or a threat of serious harm to the marine environment under its jurisdiction or sovereignty may notify the Secretary General in writing of the grounds upon which such belief is based. The Secretary-General shall provide the contractor and its sponsoring state or states with a reasonable opportunity to examine the evidence, if any, provided by the coastal state as the basis for its belief. The contractor and its sponsoring state or states may submit their observations thereon to the Secretary-General within a reasonable time. 3. If there are clear grounds for believing that serious harm to the marine environment is likely to occur, the Secretary-General shall act in accordance with regulation 33 and, if necessary, shall take immediate measures of a temporary nature as provided for in regulation 33 (3). 4. Contractors shall take all measures necessary to ensure that their activities are conducted so as not to cause serious harm to the marine environment, including, but not restricted to, pollution, under the jurisdiction or sovereignty of coastal states, and that such serious harm or pollution arising from incidents or activities in its exploration area does not spread beyond such area (…)".

The obligation to cooperate and the prohibition of damage to the coasts refers to the relative development of guidelines and the effects of the activity in areas such as Tonga, Nauru and Micronesia, which in the recent past have asked to control, evaluate and recognize the approval of work plans for mining exploitation by coastal states (Lily, Roady, 2020). These are claims that appear favorable and based on forms of consultation with coastal states that are interested in mining exploitation, recognizing the relative power of veto for the authorization of extraction activities.

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[34] In particular, art. 4 affirms that: "(…) nothing in these regulations affects the rights of coastal states in accordance with article 142 and other relevant provisions of the Convention. 2. Contractors shall take all measures necessary to ensure that their activities are conducted so as not to cause Serious Harm to the Marine Environment, including, but not restricted to, pollution, under the jurisdiction or sovereignty of coastal states, and that such Serious Harm or pollution arising from Incidents in their Contract Area does not spread into areas under the jurisdiction or sovereignty of a coastal state. 3. Any coastal state which has grounds for believing that any activity under a Plan of Work in the Area by a Contractor is likely to cause Serious Harm or a threat of Serious Harm to its coastline or to the Marine Environment under its jurisdiction or sovereignty may notify the Secretary-General in writing of the grounds upon which such belief is based. The Secretary-General shall immediately inform the Legal and Technical Commission, the Contractor and its sponsoring state or states of such notification. The Contractor and its sponsoring state or states shall be provided with a reasonable opportunity to examine the evidence, if any, and submit their observations thereon to the Secretary-General within a reasonable time. 4. If the Commission determines, taking account of the relevant Guidelines, that there are clear grounds for believing that Serious Harm to the Marine Environment is likely to occur, it shall recommend that the Council issue an emergency order pursuant to Art. 165 (2) (k) of the Convention. 5. If the Commission determines that the Serious Harm or threat of Serious Harm to the Marine Environment, which is likely to occur or has occurred, is attributable to a breach by the Contractor of the terms and conditions of its exploitation contract, the Secretary-General shall issue a compliance notice pursuant to regulation 103 or direct an inspection of the Contractor's activities pursuant to article 165 (2) (m) of the Convention and Part XI of these regulations (…)".

Precautionary Principle within the International Seabed Mining Authority Code

The precautionary principle at global level dates back to July 2021 when the Environment Ministers within the G20 declared that:

> “(...) development of international seabed mining regulations, in line with the precautionary approach, that result in the effective protection of the marine environment (...)”.

The references were various and were already evident from the past when the former Secretary General of the UN Kofi Annan (Wolfrum, 2014) spoke in a programmatic character for the seabed mining industry and national jurisdiction, underlining that:

> “(…) deeper-water marine mining industry (…) commercial production begins, an opportune moment might now arise to apply the precautionary approach to the potential environmental impact of this future industry (…) caution needs to be exercised so that burdensome requirements, environmental or otherwise, do not prevent this industry from coming into being altogether. An important issue in this context is the maintenance of the balance achieved in UNCLOS between developmental interests and environmental concerns (...)”[35].

The main work of the UN General Assembly was to protect biodiversity and to call on international authorities to continue:

> “(...) urgently how to better address, on a scientific basis, including the application of precaution, the threats and risks to vulnerable and threatened marine ecosystems and biodiversity in areas beyond national jurisdiction

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[35] United Nations General Assembly, Oceans and the Law of the Sea: Report of the Secretary General, 30 September 1999, A/54/429, para. 343.

(...)"[36].

The Authority in the precautionary sector has carried out a multi-task work. It has tried to develop control, respect and measures for the protection of the environment as well as to the subjects involved. For the Authority, the exploration and exploitation activities have acquired:

"(…) expertise to discharge its numerous environmental tasks, including performing cumulative and regional environmental assessments (...)"[37].

The Commission as the appropriate body to strengthen the protection of the marine environment and as an expression of a precautionary nature reflected in all fields of scientific, technical, legal level applying the principle in a general way.

The Authority has adopted the relative measures for the protection of the environment without concrete results (Freestone, Hey, 1995), thus, identifying a best environmental practice and defining the mining exploitation to carry out the extractive operations on a scale of control, assessment for the relative risks that can be caused[38]. The precautionary principle identifies the precise conservation as a parameter, according to which the Authority is compared with norms, regulations, procedures for the protection of the marine environment (Levin, Mengerink, Gjerde, Rowdena, Van Dover, Clark, Ramirez-Llodra, Currie, Smith, Sato, Gallo, Sweetman, Lily, Armstrong, Brider, 2016).

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[36] United Nations General Assembly, Oceans and the Law of the Sea, 5 March 2004, A/RES/58/240, par. 52. International Seabed Authority Council, Legal and Technical Commission, Draft regulations on prospecting and exploration for polymetallic nodules in the Area. Prepared by the Secretariat, 17 March 1997, ISBA/3/LTC/WP.1; International Seabed Authority Council, Legal and Technical Commission, Draft regulations on prospecting and exploration for polymetallic nodules in the Area. Provisional text prepared by the Legal and Technical Commission, 19 March 1997, ISBA/3/LTC/WP.1/rev.1., International Seabed Authority Council, Legal and Technical Commission, Draft regulations on prospecting and exploration for polymetallic nodules in the area. Consolidated version, 21 March 1997, ISBA/3/LTC/WP.2; International Seabed Authority Council, Legal and Technical Commission, Draft regulations on prospecting and exploration for polymetallic nodules in the Area. Provisional text prepared by the Legal and Technical Commission, 23 March 1997, ISBA/3/LTC/WP.1/rev.3. International Seabed Authority Council, Draft regulation on prospecting and exploration for polymetallic nodules in the Area. Proposed by the Legal and Technical Commission, 29 April 1998, ISBA/4/C/4.

[37] International Seabed Authority, Discussion Paper: The Implementation of the Precautionary Approach by the International Seabed Authority, 2017, p. 2.

The impact and measurements are related to biodiversity and connectivity of levels that are heterogeneous through the identification of ecological thresholds, which the Authority has the task of accepting them when greater control is requested to verify to determine the serious damage at the ecosystem level (Wolfrum, 2014)[39]. The Authority can carry out the relative

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38The World Bank, Precautionary Management of Deep Seabed Mining Potential in Pacific Island Countries, 2016.

39“(…) 2.1 The Contractor shall have security of tenure and this contract shall not be suspended, terminated or revised except in accordance with sections 20, 21 and 24 hereof. 2.2 The Contractor shall have the exclusive right to explore for polymetallic nodules in the exploration area in accordance with the terms and conditions of this contract. The Authority shall ensure that no other entity operates in the exploration area for a different category of resources in a manner that might unreasonably interfere with the operations of the Contractor. 2.3 The Contractor, by notice to the Authority, shall have the right at any time to renounce without penalty the whole or part of its rights in the exploration area, provided that the Contractor shall remain liable for all obligations accrued prior to the date of such renunciation in respect of the area renounced. 2.4 Nothing in this contract shall be deemed to confer any right on the Contractor other than those rights expressly granted herein. The Authority reserves the right to enter into contracts with respect to resources other than polymetallic nodules with third parties in the area covered by this contract (…)”.According to section 5.1 of exploration regulations: “(…) contractor shall take necessary measures to prevent, reduce, and control pollution and other hazard to the marine environment arising from its activities in the Area, as far as reasonable possible applying a precautionary approach and best environmental practices (…)”.

control to evaluate the activities that have to do with the exploitation that cannot exceed the carrying capacity in the environment as well as other types of anthropogenic nature.

Best environmental practice and best available technology within the International Seabed Authority Mining Code

The use of best environmental practices (BEP) and best available technology (BAT) (Wolfrum, 2014) means the:

> "(...) accepted norms or customs of environmental and risk management (...)[40] basic ingredients of the principle of precaution (…)" (Handl, 1991).

BAT and BEP have a main work, that is carried out in the OSPAR Convention, defining the:

> "(...) stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste[41] (…) the application of the most appropriate combination of environmental control measures and strategies (...)"[42].

Within the OSPAR, BAT and BEP have reduced their autonomy and the ways in which they conduct their activities that have to do with the impact on the environment within a framework that limits the circumstances of the treaties that provide the measures of adoption of environmental practices that differentiate technological advances for research scientifically based on continuous technological knowledge[43].

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[40] International Seabed Authority, Technical Study 10: Environmental Management Needs for Exploration and Exploitation of DeepSea Minerals, 2015, 33. IFC Performance Standards on Environmental and Social Sustainability, 2012.

[41] See for example the second paragraph of Appendix 1 to the OSPAR Convention.

[42] See also the sixth paragraph of Appendix 1 to the OSPAR Convention.

Within this context, we recall from the International Court of Justice (ICJ) the case of the paper mills on the Uruguay River as a response to the concrete accusation of Argentina to Uruguay, which did not impose on the Orion Mill the obligation to use the relative BAT, thus allowing the defendant to avail of the standard for the application in the relative area that was provided for by the rules of the European Union (Liakopoulos, 2020b)[44].

As limits that are part of the BAT and BEP are the dependence of an economic efficiency, which balances the relative costs that apply the practices, technologies and the protection of the marine environment. That is, through policies not at global level but national, where the international instrument has provided that the precise criteria are proportionate to legitimate interests, which exclude the economic interest that determines the adoption of a practice with an effective economic perspective for the global protection of the environment (De La Fayette, 1999).

The application of BAT and BEP are not included in UNCLOS and developments in the extractive sector involving offshore hydrocarbons[45] were related to the application of marine environment protection[46]. The BEPs for the Regulation, Sulphide Exploration and Cobalt Crusts[47] were absent and are incorporated in the relevant Code for Polymetallic Nodules and the amendments of 2013. The Regulations provided that according to:

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[43] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (recast). OJ L 334, 17.12.2010, p. 17–119.

[44] ICJ, Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, 20 April 2010, I. C. J. reports p. 14, para. 220.

> "(…) Article 145 of the Convention (...) each contractor shall take necessary measures to prevent, reduce and control pollution and other hazards to the marine environment arising from its activities in the area as far as reasonably possible, applying (…) best environmental practices[48] (…) (…) to fulfill this obligation, in accordance with the standard clauses provided for in each Regulation[49] (…) operators shall collect, using BAT, environmental data with which to assess the effects of their activities and to establish a monitoring programme (…)" (Lodge, 2003).

As regards the code for the exploitation and mineral resources, the expression BAT is understood as:

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[45] International Seabed Authority Council, Key terms: distinguishing between good industry practice and best practices under the draft regulations on exploitation of mineral resources in the Area, 15 January 2019, ISBA/25/C/11, para. 3.

[46] Preparatory Commission For The International Seabed Authority and for the International Tribunal for the Law of the Sea, Special Commission 3, Draft regulations on prospecting, exploration and exploitation of polymetallic nodules in the Area, 27 August 1991, LOS/PCN/SCN.3/WP.6/Add.5/rev.1., article 111 (c).

[47] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010, ISBA/16/A/12/rev.1, artt.5 and 33. International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for Cobalt-rich Ferromanganese Crusts in the Area, 22 October 2012, ISBA/18/A/11, artt. 5 and 33.

[48] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010, ISBA/16/A/12/rev.1, art. 33 (5).

[49] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010, ISBA/16/A/12/rev.1, Annex 4, Section 5.2.

> “(...) stage of development, and state-of the-art processes, of facilities or of methods of operation that indicate the practical suitability of a particular measure for the prevention, reduction and control of pollution and the protection of the Marine Environment (...) taking into account the guidance set out in the applicable Guidelines (...)”[50].

However, regarding BEPs:

> “(…) application of the most appropriate combination of environmental control measures and strategies, that will change with time in the light of improved knowledge, understanding or technology, taking into account the guidance set out in the applicable Guidelines (…)”.

The ad hoc nature of the BAT and BEP has been included in the context of the area's activity, where its dimensions have an evolutionary and applicative character to avoid damages in the marine environment that have had harmful effects. The practices that come from technologies include geographical, social and economic factors. The precautionary principle finds application in the BAT and BEP for the sponsor states that have no limits in knowledge and their financial resources are applied in an integrative and uniform manner[51].

The recurrence of similar phenomena such as convenience flags in the exploitation sector for mineral resources take on a form for sponsorship shopping, as a practice, according to which the contractor requests the relative sponsor certificate for a developing country that can in this way evade the financial burdens for environmental protection, that derive from the

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50International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 22 March 2019. ISBA/25/C/WP.1

51ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS, reports 2011 p. 10, para. 161.

obligation of BAT and BEP, which are used especially in the major industrialized countries.

Standardizing compliance does not mean penalizing non-industrialized countries that are against the enjoyment and facilitation of participation, which concerns the activities of the area. According to Art. 148 UNCLOS[52], the relevant provision explicitly takes into account the interests and needs of the countries that regulate the activities of the area. Access to the best technology that exists does not necessarily mean greater success on the market[53] but the verification that the authority can thus control, cooperate and protect the related intellectual property. This is an obligation where the implementation of training programs in developing countries have the objective of facilitating the know-how that is transferred[54]. BAT and BEP approve the work plans regarding mining exploitation and reduce the determination of the related decommissioning plans for the structures that extract[55].

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[52] Article 148 affirms that: "(…) participation of developing states in activities in the area shall be promoted as specifically provided for in this Part, having due regard to their special interests and needs, and in particular to the special need of the land-locked and geographically disadvantaged among them to overcome obstacles arising from their disadvantaged location, including remoteness from the area and difficulty of access to and from it (…)". Principle 11 of the Declaration affirms that: "(...) effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries (…)".

[53] "(...) addition to the provisions of article 144 of the Convention, transfer of technology for the purposes of Part XI shall be governed by the following principles: (a) The Enterprise, and developing states wishing to obtain deep seabed mining technology, shall seek to obtain such technology on fair and reasonable commercial terms and conditions on the open market, or through joint-venture arrangements; (b) If the Enterprise or developing states are unable to obtain deep seabed mining technology, the Authority may request all or any of the contractors and their respective sponsoring state or states to cooperate with it in facilitating the acquisition of deep seabed mining technology by the Enterprise or its joint venture, or by a developing state or states seeking to acquire such technology on fair and reasonable commercial terms and conditions, consistent with the effective protection of intellectual property rights. States Parties undertake to cooperate fully and effectively with the Authority for this purpose and to ensure that contractors sponsored by them also cooperate fully with the Authority; (c) As a general rule, States Parties shall promote international technical and scientific cooperation with regard to activities in the Area either between the parties concerned or by developing training, technical assistance and scientific cooperation programmes in marine science and technology

The guidelines of the Authority are not so developed at an advanced level. The industrial sector through the experience it can guide and coordinate the sponsor states by referring to the codes of conduct that are adopted by industrial groups also in areas that are similar such as for example the oil and gas[56]. A

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and the protection and preservation of the marine environment (…)".

[54] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the Area, 15 November 2010, ISBA/16/A/12/rev.1, Annex 4, Section 8: "(…) the Regulations, the Contractor shall, prior to the commencement of exploration under this contract, submit to the Authority for approval proposed training programmes for the training of personnel of the Authority and developing states, including the participation of such personnel in all of the Contractor's activities under this contract. 8.2 The scope and financing of the training programme shall be subject to negotiation between the Contractor, the Authority and the sponsoring state or states. 8.3 The Contractor shall conduct training programmes in accordance with the specific programme for the training of personnel referred to in section 8.1 hereof approved by the Authority in accordance with the Regulations, which programme, as revised and developed from time to time, shall become a part of this contract as schedule 3 (…)".

[55] International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 22 March 2019, ISBA/25/C/WP.1, article 13.

[56] International Seabed Authority Council, Content and development of standards and guidelines for activities in the Area under the Authority's regulatory framework, 17 December 2018, ISBA/25/C/3, par. 18. International Marine Minerals Society's Code for Environmental Management for Marine Mining, riportato in International Seabed Authority Council, Legal and Technical Commission, The International Marine Minerals Society's Code for Environmental Management of Marine Mining, 11 February 2010, ISBA/16/LTC/2.

greater certification to operate the approval of an ad hoc work plan is a conditio sine qua opportunity to guarantee an environmental level that exploits the resources in a reasonable way and with excessive costs for a perspective applicant, thus, obtaining the relative certification, that guarantees the conclusion of a contract with the authority[57].

The relevant mining code deals with the BAT and BEP as well as the Good Industry Practice, which determine the Commission for the possession of a technical capacity to the operator, who exploits the practices of the Good Industry Practice, which has to do with the principle of good diligence, the technical perspective and the experience in the industry sector in the maritime sector[58], with which the section of the Crown Minerals Act of 1991 of New Zealand was inspired[59]. In particular, the Good Industry Practice in the maritime sector is connected with the national jurisdictions, consolidated, according to the skills and experience[60], which are the basis for the development and the limits of the domestic jurisdiction to define more clearly the real content of the Good Industry Practice, which guarantees an

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57International Seabed Authority Council, Summary report of the President of the Council of the International Seabed Authority on the work of the Council during its twenty-third session, 5 September 2017, ISBA/23/C/19/rev.1.

58International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 22 March 2019, ISBA/25/C/WP.1, schedule.

59International Seabed Authority Council, Key terms: distinguishing between good industry practice and best practices under the draft regulations on exploitation of mineral resources in the area, 15 January 2019, ISBA/25/C/11, para. 9.

60International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 22 March 2019, ISBA/25/C/WP.1, Schedule.

effective application.

(Follows): The relative adaptive approach of the International Seabed Authority's Mining Code

The adaptive management sector for the Authority is a new and very sensitive sector, which is linked to mining operations, according to which the risks for the environment do not find a predictable level but authorize through the exploration regulations the direct management at an adaptive level[61] and in a profitable way (Jaeckel, 2017).

According to Art. 28 of the nodules and Art. 30 of the sulphides and cobalt crusts the periodic reviews of the relative contracts have a frequency of about five years[62]. This is the periodic review of the UK Seabed Resources Ltd., which has dealt with the exploration of polymetallic nodules. The Secretary General already stated in 2020:

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[61] International Seabed Authority, Developing a regulatory framework for mineral exploitation in the area: Report to Members of the Authority and stakeholders, New Zealand Submission, 2016. Intergovernmental conference on an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, Fourth session, Revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, 18 November 2019, A/CONF.232/2020/3, article 21.

[62] "(…) Secretary-General shall jointly undertake a periodic review of the implementation of the plan of work for exploration at intervals of five years. The Secretary-General may request the contractor to submit such additional data and information as may be necessary for the purposes of the review. 2. In the light of the review, the contractor shall indicate its programme of activities for the following five-year period, making such adjustments to its previous programme of activities as are necessary. 3. The Secretary-General shall report on the review to the Commission and to the Council. The Secretary-General shall indicate in the report whether any observations transmitted to him by states parties to the Convention concerning the manner in which the contractor has discharged its obligations under these Regulations relating to the protection and preservation of the marine environment were taken into account in the review (…)".

> “(…) to send a revised plan of activities for the following five years, thus integrating, to those already planned, the additional operations to be carried out in the light of the knowledge obtained in the first five years (...)[63] the inclusion of adaptive management has been discussed in 2015[64] (…) the Commission has collaborated with the New Zealand delegation, which has offered the subsidiary body a summary document on the national experience gained in the application of adaptive management, for the benefit of the development of similar provisions in the context of activities in area[65] (…) in the possibility of allowing the carrying out of extractive operations on a smaller scale and in defined periods of time (...)”[66].

Monitoring and mitigation measures through exploration and operations, such as test mining, are adjustments to operational plans, which are created and concluded in the event of an emergency within an adaptive management for the protection of ecosystems, which are complex in the area and promotes their formation through trials and errors[67], i.e. a limiting impact from risks that are neglected and that cannot also create serious damage to the marine environment (Cooney, Lang, 2007).

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[63] International Seabed Authority Council, Status of contracts for exploration and related matters, including information on the periodic review of the implementation of approved plans of work for exploration, 17 December 2019, ISBA/26/C/4, parr. 7-10.

[64] International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission during the twenty-first session of the International Seabed Authority, 15 July 2015, ISBA/21/C/16, Annex III.

[65] International Seabed Authority, Developing a regulatory framework for mineral exploitation in the area: Report to Members of the Authority and stakeholders, New Zealand Submission, 2016.

[66] International Seabed Authority, Developing a regulatory framework for mineral exploitation in the Area: Report to Members of the Authority and stakeholders, 2015, 31.

[67] Land and Environment Court of New South Wales, Newcastle & Hunter Valley Speleological Society Inc v. Upper Hunter Shire Council and Stoneco Pty Limited (No 2), Judgement, 23 June 2010, 10497 of 2009, par. 184.

On the other hand, scientific knowledge has proceeded to the relative revision of the regulation that exploits the recommendations, according to the environmental management work plan of various regions (Jaeckel, 2017)[68]. The periodic revision of the environmental standards that are annexed to the relative regulation can acquire a binding character that modifies the adaptive management that is applied, tested and dealing with polymetallic nodules by requesting the conclusion of agreements through the authority and the individual contractors who make them[69].

In the context of mining exploitation, the modification of an environmental standard that carries out an adaptive management determines the remodulations, that are burdensome and under the relative technical and economic profile for the contractor[70]. Within a perspective that integrates management through exploitation regulations, which determine investments for future operators, and translate drastically the relative reduction of interest in the specific sector[71]. Perhaps it would be appropriate to conclude a contract based on Articles 19 and 19 of the annex of UNCLOS as a greater guarantee for operators[72]. Regulations that leverage contracts based on an adaptive approach can be useful for the implementation of mining activities through recommendation tools (Jaeckel, 2017).

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[68] International Seabed Authority Council, Development of environmentally responsible mining technologies: towards an approval process for mining equipment, 1 June 2017, ISBA/23/C/5, par. 10.

[69] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010, ISBA/16/A/12/rev.1, Annex IV, Section 4.4.

[70] International Seabed Authority Council, Development of environmentally responsible mining technologies: towards an approval process for mining equipment, 1 June 2017, ISBA/23/C/5, para. 11.

[71] International Seabed Authority, Technical Study 17: Towards an ISA environmental management strategy for the area: report of an international workshop

Towards an ecosystem approach in the International Seabed Authority's Mining Code

The draft of the relevant regulation for exploitation affirmed that:

> "(…) the fundamental policies and principles and approaches of these regulations are, inter alia, to: (…) (e) Provide (…) pursuant to article 145 of the Convention, for the effective protection of the Marine Environment from the harmful effects which may arise from exploitation (…) based on (…) the application of an ecosystem approach (...)"[73].

This is a position that conflicts with the Wellington Convention (Kirkham, Gjerde, Wilson, 2020), which allowed the protection of the relevant ecosystems for the authorization of exploration activities for mining located in Antarctica[74], according to which

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convened by the German Environment Agency (UBA), the German Federal Institute for Geosciences and Natural Resources (BGR) and the Secretariat of the International Seabed Authority (ISA) in Berlin, 2017, 64ss.

[72] Art. 153 UNCLOS affirms that: "(…) contract (…) shall provide for security of tenure. Accordingly, the contract shall not be revised, suspended or terminated except in accordance with Annex III, articles 18 and 19 (…)".

[73] International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the Area, 22 March 2019, ISBA/25/C/WP.1, article 2.

[74] See also Art. 4 of the Wellington Convention which affirms that: "(…) Antarctic mineral resource activities shall be based upon information adequate to enable informed judgments to be made about their possible impacts and no such activities shall take place unless this information is available for decisions relevant to those activities. 2 No Antarctic mineral resource activity shall take place until it is judged, based upon assessment of its possible impacts on the Antarctic environment

the ecosystem approach did not include the relevant regulations for the exploration of the Area[75].

This regulation is not in line with mineral resources, where the impact of exploitation is linked to the biodiversity of the seabed[76]. Perhaps the greatest persuasion of the road that had to be taken was the coordination for the Convention on Biological

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and on dependent and on associated ecosystems, that the activity in question would not cause: (a) significant adverse effects on air and water quality; (b) significant changes in atmospheric, terrestrial or marine environments; (c) significant changes in the distribution, abundance or productivity of populations of species of fauna or flora; (d) further jeopardy to endangered or threatened species or populations of such species; or (e) degradation of, or substantial risk to, areas of special biological, scientific, historic, aesthetic or wilderness significance. 3 No Antarctic mineral resource activity shall take place until it is judged, based upon assessment of its possible impacts, that the activity in question would not cause significant adverse effects on global or regional climate or weather patterns. 4 No Antarctic mineral resource activity shall take place until it is judged that: (a) technology and procedures are available to provide for safe operations and compliance with paragraphs 2 and 3 above; (b) there exists the capacity to monitor key environmental parameters and ecosystem components so as to identify any adverse effects of such activity and to provide for the modification of operating procedures as may be necessary in the light of the results of monitoring or increased knowledge of the Antarctic environment or dependent or associated ecosystems; and (c) there exists the capacity to respond effectively to accidents, particularly those with potential environmental effects. 5 The judgments referred to in paragraphs 2, 3 and 4 above shall take into account the cumulative impacts of possible Antarctic mineral resource activities both by themselves and in combination with other such activities and other uses of Antarctica (…)”.

[75] United Nations General Assembly, Oceans and the Law of the Sea: Report of the Secretary- General, 22 March 2011, A/66/70: “(…) secretariat of the International Seabed Authority, in its contribution, noted that a challenge lay in adopting, implementing and keeping under review the rules, regulations and procedures of the Authority that embody an ecosystem-based management approach and an assessment of the impacts in order to manage risks to biodiversity. It also noted that the goals of the management plan for the Clarion Clipperton Zone included the maintenance of regional biodiversity, ecosystem structure and ecosystem function, together with the application of the principles of integrated ecosystem-based management (…)”.

[76] United Nations General Assembly, Oceans and the Law of the Sea, 18 April 2013, A/RES/67/78, para. 174: “(…) competent organizations and bodies that have not yet done so to incorporate an ecosystem approach into their mandates, as appropriate, in order to address impacts on marine ecosystems (…)”.

Diversity[77]. The provision refers to Decision V/6, which has stated:

> "(...) the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential structure, processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems (...)"[78].

The relevant references in practice have to do with the application of an ecosystem approach, that favored the development of lines of operation[79] between policy and fundamental principles, as a consequence of the measures for environmental protection, that the Authority had to adopt. The impacts for the exploitation of the related mineral resources do not have to do with the extraction of the contract area at regional and sub-regional level. Furthermore, the cumulative impacts (Warner, 2020) we can say that they have as their objective the drafting at regional level of environmental management, which has been approved in the Clarion-Clipperton area[80], according to strategic environmental assessments, that seek to monitor exploitation operations and that represent the identification of measures for adoption ecosystems in the area of taking that is examined.

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[77] International Seabed Authority, Compilation of the proposals and observations sent by other member states of the Authority, observers and stakeholders on the Draft Regulations in response to Paragraphs 7 and 8 of ISBA/25/C/37: Belgium, 2020, 9ss.

[78] Convention on Biological Diversity, Fifth Meeting of the Conference of the Parties, Decision V/6, 15-26 May 2000, UNEP/CBD/COP/5/6.

[79] International Seabed Authority, Compilation of the proposals and observations sent by members of the Council in response to Paragraphs 7 and 8 of ISBA/25/C/37: Australia, 2019, 10.

[80] International Seabed Authority Council, Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone, 26 July 2012, ISBA/18/C/22.

What we have in the field of environmental impact assessment in the International Seabed Authority Mining Code?

The related assessments in the range of implementation, which concern impacts on anthropogenic activities and impact assessment impose, realize, focus the social, economic perspective for assessments that provide the possible benefits for impacts that are connected (Doelle, Sander, 2020) to certain activities (Sander, 2016)[81].

When we talk about impact we speak for Environmental Impact Assessment (EIA) as a tool that is rooted both at international and domestic level (Viňuales, 2017). As a ratio that has had consequences on the environment that realizes the adoption of measures that also ensure preventively the reduction of a control with harmful results (Sands, Peel, Fabra, Mackenzie, 2017).

The EIA was also part of the marine environment through Part XII UNCLOS. According to Art. 206 (Falk, Elver, 1999; Kong,

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[81] Doelle and Sander, affirmed that: "(…) assessments according to: the object of assessment with related differences in assessment tools: regional assessments and strategic assessments of policies, plans and programmes versus assessments of concrete projects; the thematic scope or concern of assessments, ranging from a focus on a narrow range of issues, such as biophysical or socioeconomic impacts, to integrated assessments considering all impacts; the jurisdictional scope: domestic within one national state or transboundary, involving other states' territories or ABNJ (…)".

2011) placed for the states the relative reasons for the planning, jurisdiction and control activities as causes of harmful change within the marine environment, according to the sovereignty of the state that can evaluate the relative effects (Sands, Peel, Fabra, Mackenzie, 2017)[82], thus distinguishing in a discretionary way the relative evaluation to be carried out, which is limited to the activities, that foresee the harmful effects (Craik, 2008; Oude Elferink, 2012; Sander, 2016).

The EIA did not have a general character in practice but a uniform one in opinio juris (Bastmeijer, Koivuurova, 2008), as we noted from the ICJ in the case of the paper mills on the Uruguay river where it was stated that:

> "(...) a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed (…) activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource (…)" (Liakopoulos, 2020a; Warner, 2021)[83].

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[82] See Art. 206 UNCLOS which affirms that: "(…) States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in article 205 (…)".

[83] ICJ, Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, 20 April 2010, I. C. J. reports p. 14, para. 204. ICJ, Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment of 20 December 1974 in the Nuclear Tests (New Zealand v. France) Case, Provisional Measures, 22 September 1995, ICJ. Reports 1995, p. 288: "(...) Parties agree to develop and maintain, with the assistance of competent global, regional and subregional organisations as requested, technical guidelines and legislation giving adequate emphasis to environmental and social factors to facilitate balanced development of their natural resources and planning of their major projects which might affect the marine environment in such a way as to prevent or minimise harmful impacts on the Convention Area. 2. Each Party shall, within its capabilities, assess the potential effects of such projects on the marine environment, so that appropriate measures can be taken to prevent any substantial pollution of, or significant and

A transboundary context may also apply to activities with an impact on the environment in an area beyond the limits of national jurisdiction; and the Court's references to "shared resources" may also apply to resources that are the common heritage of mankind(Treves, 2019)[84].

Judge Weeramantry also stated in his separate opinion on the Gabčíkovo-Nagymaros case of the ICJ:

> "(...) it is a dynamic obligation, since it provides for continuous monitoring and continues until the conclusion of the project[85] (…) post-project analysis (...) which consists of continuous monitoring of the authorised activities, to prevent the recurrence of any undesirable effects, to ensure compliance with the conditions under which the approval is granted, and with the aim of collecting further data that can transfer the acquired knowledge to other similar sectors (...)"[86].

As regards the Area and Antarctica, the duties of notification, information, consultation do not have effective limits of reciprocity. The erga omnes obligations have a nature that has

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harmful changes within, the Convention Area. 3. With respect to the assessment referred to in paragraph 2, each Party shall, where appropriate, invite: (a) public comment according to its national procedures; (b) other Parties that may be affected to consult with it and submit comments. The results of these assessments shall be communicated to the Organisation, which shall make them available to interested Parties (…)". ICJ, Case Concerning the Gabcikovo-Nagymaros Project (Hungary v. Slovakia), Judgment, 25 September 1997, I. C. J. reports p. 7, Separate Opinon Judge Weeramantry, pp. 14-15, is affirmed that: "(…) merely an assessment prior to the commencement of the project, but a continuing assessment and evaluation as long as the project is in operation. This follows from the fact that the EIA is a dynamic principle and is not confined to a pre-project evaluation of possible environmental consequences (…)".

[84] ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS reports 2011 p. 10, para. 148.

[85] ICJ, Case Concerning the Gabcikovo-Nagymaros Project (Hungary v. Slovakia), Judgment, 25 September 1997, I. C. J. reports p. 7, Separate Opinion of Judge Weeramantry, p. 108.

[86] Convention of Espoo, Appendix V.

taken into account an interest in comunis for the international community based on Art. 205 UNCLOS and making available the effects and activities conducted for international organizations such as the case of the Authority.

(Follows): EIA and regulations on mineral exploration of the Area

As regards exploration, Art. 18 of the regulation on polymetallic nodules and Art. 20 on sulphides and cobalt crusts, are the basis for exploration and research in the oceanographic sector and baseline data that it intends to carry out[87]. The operator should evaluate, control the exploration of the marine environment as well as the prevention, reduction, control measures for pollution[88]. The EIA implicitly indicated that:

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[87] Agreement of New York, Annex, Section I, para. 7: "(…) application for approval of a plan of work shall be accompanied (…) by a description of a programme for oceanographic and baseline environmental studies in accordance with the rules, regulations and procedures adopted by the Authority (…)".

[88] See Art. 18 of regulation on the exploration of polymetallic nodules and 20 of polymetallic sulphides and cobalt crusts state that: "(…) applicant shall submit, with a view to receiving approval of the plan of work for exploration in the form of a contract, the following information: (a) A general description and a schedule of the proposed exploration programme, including the programme of activities for the immediate five-year period, such as studies to be undertaken in respect of the environmental, technical, economic and other appropriate factors that must be taken into account in exploration; (b) A description of the programme for oceanographic and environmental baseline studies in accordance with these Regulations and any environmental rules, regulations and procedures established by the Authority that would enable an assessment of the potential environmental impact, including, but not restricted to, the impact on biodiversity, of the proposed exploration activities, taking into account any recommendations issued by the Legal and Technical Commission; (c) A preliminary assessment of the possible impact of the proposed exploration activities on the marine environment; (d) A description of proposed measures for the prevention, reduction and control of pollution and other hazards, as well as possible

> "(…) a kind of environmental impact assessment which the applicant has to include in its application (…)" (Bothe, 2002),

without obtaining some peculiar characteristics in practice but highlighting the so-called knowledge gaps, which in the procedural context have the objective of obtaining a relative license for the evaluation in the exploration of the area (Craik, Gardner, Mccarthy, 2017; Jaeckel, 2017)[89].

Public participation is a requirement that ensures the decision-making process, transparent, informed that has to do with consultations. As an entire process can have a confidential character for the Commission (Bothe, 2002), where through codified criteria asked for lines of guarantees, that is, a final result for the protection, preservation in the marine environment and according to the exploration regulations[90]. It is a discretion, where through the relative information that is provided for contiguous sites, is contained in the DeeepData databases that are created by the Authority itself.

Already since 2020 we have the relative approval for a work that was carried out in the Blue Minerals Jamaica Ltd., and with the

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impacts, to the marine environment; (e) Data necessary for the Council to make the determination it is required to make in accordance with regulation 12 (1); and (f) A schedule of anticipated yearly expenditures in respect of the programme of activities for the immediate five-year period (…)".

89Craik, Gardner, Mccarthy have highlighted that the EIA constitutes an important element for the value on consultations and conducts where the topics and an alternative choice was available with the relative limited exceptions which concern the exploration of hydrothermal vents but did not foresee the related exploratory activities for an impact that had to do with the marine environment.

90International Seabed Authority Council, Legal and Technical Commission, Evaluation by the Legal and Technical Commission of applications for plans of work for exploration for polymetallic nodules, 14 January 2014, ISBA/18/LTC/7/rev.1

relative sponsor from the island of the Greater Antilles that had to do with the exploration of polymetallic nodules in an area that included developing countries, according to the rules of UNCLOS. The same Commission declared in this regard:

> “(...) determination as to whether the applicant had fulfilled the requirements contained in the regulations, in particular with respect to (...) effective protection and preservation of the marine environment (...)[91] desktop environmental risk assessment as part of an environmental impact assessment scoping study to identify and rank the potential impacts of its activities (...) before undertaking the exploration activities and not already in the authorization phase (...)”.

According to section 5.2 of the standard clauses of the relevant exploration regulations:

> “(…) the commencement of exploration activities, the Contractor shall submit to the Authority: (…) an impact assessment of the potential effects on the marine environment of the proposed activities[92] (…) compared to the previous version of the regulation on the exploration of polymetallic nodules of 2000, which limited the submission of a full EIA to test-mining[93], only now applies to all those activities which are included in the Recommendations (…)”.

In this case the Recommendations in the exploration framework asked the EIA[94], as a classification and as a standard clause to restrict its related obligation of conducts and to apply some of them. The related recommendations did not ask the EIA to observe the measures that had to do with the magnotometric ones that could lead to results after the sampling from a water, from rocks and biotic communities, from oceanographic and hydrographic observations, from the measurements related to the plumes, as well as DNA screening and measurements in the related metabolic profile of the fauna.

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[91] International Seabed Authority Council, Report and recommendations of the Legal and Technical Commission to the Council of the International Seabed Authority relating to an application for approval of a plan of work for exploration for polymetallic nodules by Blue Minerals Jamaica Ltd., 6 August 2020, ISBA/26/C/22, para. 3.

[92] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the Area, 15 November 2010, ISBA/16/A/12/rev.1, Annex 4, Section 5.2.

[93] International Seabed Authority Assembly, Decision of the Assembly Relating to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 4 October 2000, ISBA/6/A/18, Annex 4, Section 5.5.

[94] International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area, 30 March 2020, ISBA/25/LTC/6/rev.1., para. 64.

In contrast, test mining has created individual components for the use of systems that have artificially produced disturbances that are connected with the seabed, drilling activities, acquisition of numerous mineral samples and production chain on land and collection of materials for trawl nets[95]. This type of activities have resulted in the determination of an environment, where under different techniques the authority has asked the operator of the EIA the relevant methods that have conducted the depth, penetration of sediments into rocks, that are part of a seabed contract, as well as the relevant methods for the mineral, location for the operation.

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[95] In particular see the par. 33, which is affirmed that: "(…) activities require prior environmental impact assessment, as well as an environmental monitoring programme to be carried out during and after the specific activity, in accordance with the recommendations contained in paragraphs 33 and 38. It is important to note that these baseline, monitoring and impact assessment studies are likely to be the primary inputs to the environmental impact assessment for commercial mining. The activities include: (a) Use of sediment disturbance systems that create artificial disturbances and plumes on the sea floor; (b) Testing of mining components; (c) Test- mining; (d) Testing of discharge systems and equipment; (e) Drilling activities using on-board drilling rigs; (f) Sampling with epibenthic sled, dredge or trawl, or similar technique, in nodule fields, that exceeds 10,000 m^2; (g) Taking of large samples to test land base processes (…)".

The exploitation phase that conducts a test-mining could identify the monitoring that determines the thickness of the relative sediment redeposited after the test as a change that has to do with the species of the community, and the underwater modifications, which are connected with various variations and are linked with the circulation of living organisms. The update of the Recommendations of 2019 presented a useful framework for the Authority and the related regulation. They were used as a tool for the procedures and the content that had to do with the EIA.

The Secretary General has submitted a report on the environmental impact entitled: Environmental Impact Statement (EIS). It is an activity that has the objective of ensuring the authority, which disposed of the public consultation and stakeholders, to provide comments within the next thirty days[96]. The Commission based on the related report has decided to recommend the operator's business plan and also ask for further clarifications[97]. In this way the Commission does not seem to carry out a transparent but helpful work considering that it was unsatisfactory to prohibit the activity of a test every time it considered the impacts of a marine environment to be incompatible (Lily, Roady, 2020).

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[96] International Seabed Authority, Communications and Stakeholder Engagement Strategy (Zero Draft), 2021.

[97] International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the area, 30 March 2020, ISBA/25/LTC/6/rev.1, para. 41.

The Commission has undertaken, according to Article 165 (2) (k)[98] and in the phase of submitting the EIA, a risky path to cause serious damage. The exploratory activities and the related risk for serious damage in the marine environment had to do with the test for exploitation[99]. The Commission noted the control and reliability of the EIA highlighting that the absence of findings had as a consequence:

> "(...) taken to respond to the reviews and to conduct public consultation, the component testing voyages had already started by the time the Commission met (...)"[100].

The regulatory framework of the Authority had to do with the subsidiary body for the protection of the marine environment. The test undertook the relevant analyses of the Commission without providing and asking for other information for its impacts to those who wanted to control them.

Under a licence sought by the Government of India on 30 July

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[98] "(…) Commission shall: (k) make recommendations to the Council to issue emergency orders, which may include orders for the suspension or adjustment of operations, to prevent serious harm to the marine environment arising out of activities in the area. Such recommendations shall be taken up by the Council on a priority basis (…)".

[99] International Seabed Authority Council, Legal and Technical Commission, Summary of environmental work carried out by contractors, 9 March 2010, ISBA/16/LTC/4, para. 5.

[100] International Seabed Authority, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the first part of its twenty-fifth session, 25 March 2019, ISBA/25/C/19, para. 27. International Seabed Authority Council, Legal and Technical Commission, Review of environmental impact assessments for the testing of collector components in the exploration area, 23 January 2019, ISBA/25/LTC/4, para. 10.

2021, Nauru Ocean Resources Inc. (NORI), has submitted to the Secretary General of the Authority an EIS for a test involving polymetallic nodules and the riser system in its licence area and in the area that has broken away from the Clarion-Clipperton for further work by the end of 2022[101]. The test was to take into account the operation of a system involving sea and sediments, which was not of a commercial nature but the acquisition of approximately 4000 tonnes of nodules in an area of eight square kilometres.

According to paragraph 41 (d) of the Recommendations, Nauru and the sponsored entity are based on the public consultation and the process that has had to do with the publication of the EIS in 2021. In this spirit, the stakeholder consultation informed the authority of the EIA report. The Commission did not allow the analysis of the EIS and proceeded to identify working groups for the sections of the EIS in a definitive manner. It is immediately noticeable a lack of transparency for stakeholders and the need for the Commission to clarify the reports, modalities for the assessment of the EIS through activities that have to do with exploration, public consultation. The same Commission stated, in this regard, that:

> “(…) importance of transparency in the environmental management of the Area, and requests the Commission to review document

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[101] International Seabed Authority Council, Legal and Technical Commission, Review of the environmental impact assessment statement submitted by Nauru Ocean Resources Inc., 31 August 2021, ISBA/26/LTC/10.

ISBA/25/LTC/6/Rev.1 and ISBA/25/LTC/6/Rev.1/Corr.1 on recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area to ensure greater consistency in the process of consultation, including the publication of all consultation responses, the publication of the contractor's response to the comments received during the consultation process and the publication of the revised environmental impact statement to be submitted to the Commission, and also to refine those recommendations to develop an appropriate framework for the review of activities with potential significant adverse environmental impacts that are proposed for incorporation into a plan of work for exploration (…)"[102].

It was not appropriate for the proponents to request an EIA to draft the EIS. The domestic processing put a third party as a guarantee for a relationship that produced and carried out environmental studies for the relevant institutes that did the research.

The lack of transparency, is due to the monopoly that had the scientific knowledge and was based on an exploitation and exploration contract[103]. The data to be collected and controlled guaranteed savings for the same contractors, according to the procedure that had to do with the EIA and followed at international level but was also appreciated and implemented at domestic level (Plakokefalos, 2012).

We can also mention this in the field of mineral exploitation. An attempt was made through the expertise of the Commission in a

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102International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the reports of the Chair of the Legal and Technical Commission, 10 December 2021, ISBA/26/C/57, para. 14.

103International Seabed Authority, Compilation of the proposals and observations sent by members of the Council in response to Paragraphs 7 and 8 of ISBA/25/C/37: Italy, 2020.

multidisciplinary manner[104] in order to guide the decision-making of the authority according to Art. 165, par. 2, letter e) UNCLOS. Also in Annex 8 the experts who are independent and operate at international level can provide at a consultative level the protection of the marine environment and the related review of the EIA and the EIS. Art. 163, par. 13 also states about:

> “(...) another Commission, any competent organ of the United Nations or of its specialized agencies or any international organizations with competence in the subject-matter of such consultation (...)”[105].

The EIS within the scope of control and evaluation for exploitation also provided in a decisive manner[106] the guarantees for the protection of the marine environment according to the compliance with domestic plans for environmental management, which respected the standards according to the guidelines for the authority[107].

Annex VIII UNCLOS also established the possibility of a special arbitration to resolve the fisheries sector and the protection of the marine environment as well as navigation, the list of experts for each sector, the appointment of two experts for each category, which concerned the review of the relevant plans in the area as a modus alternativus and towards a new designation[108]. In other words, a solution that reviewed the area and compiled through the Secretariat the persons eligible to enter and participate in each case separately[109].

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[104] International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 27 March 2019, ISBA/25/C/18, para. 14: “(…) Commission recognised the merit of engaging with external experts in implementing its work and expertise (…)”.

[105] Art. 163 UNCLOS.

[106] International Seabed Authority, Belgian non-paper on “Strengthening the environmental scientific capacity of the International Seabed Authority”, 22 June 2018: “(…) Commission itself is a body of experts established by the Convention as a Council’s organ. We are open to discuss the Belgian proposal, however, at this stage we do not feel the strong necessity for institutionalizing the considerations of the Plan of Work by external independent experts. It should be noted that those experts and scientists will be entitled to submit comments in the public comment process provided in D[raft] R[egulation] 11 (…)”.

[107] “(…) external evaluations are carried out automatically, separately and simultaneously, by independent and internationally recognized experts (…)”.

Environmental impacts, monitoring mechanisms in the activities of the area. Management of impact reference zones and preservation reference zones

Art. 165, par. 2, lett. h) UNCLOS requires the Commission and the Council to recommend a related program to observe, analyze, control, evaluate scientific methods, on a regular basis, for pollution of the marine environment that has been caused in an area[110]. The Authority will have the related burden through the heads of state, according to Art. 204 UNCLOS[111].

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[108] Annex VIII, Art. 2 UNCLOS.

[109] International Seabed Authority Council, Consideration of a mechanism and process for the independent review of environmental plans and performance assessments under the regulations on exploitation of mineral resources in the area, 11 January 2019, ISBA/25/C/10, para. 15.

[110] "(…) Commission shall: make recommendations to the Council regarding the establishment of a monitoring programme to observe, measure, evaluate and analyse, by recognized scientific methods, on a regular basis, the risks or effects of pollution of the marine environment resulting from activities in the area, ensure that existing regulations are adequate and are complied with and coordinate the implementation of the monitoring programme approved by the Council (…)".

[111] Art. 204 UNCLOS affirms that: "(…) shall, consistent with the rights of other states, endeavour, as far as practicable, directly or through the competent international organizations, to observe, measure, evaluate and analyse, by recognized scientific

The relevant retrieval for the necessary data and monitoring was translated by the Authority with an activity that collaborates with the contractors. The exploration of polymetallic nodules of 2000 has had the form of cooperation between the authority and the sponsor states that deals with the:

> "(...) establishment and implementation of such monitoring programme (...)"[112].

Monitoring will aim to increase the efficiency and at the same time the quantity and quality of information needed, which shows the legislative provisions for the sponsor states, that render in a complementary manner the authority and through domestic legislation and exploratory regulations provided for the creation of impact reference zones (IRZ) and preservation reference zones (PRZ) to carry out environmental monitoring activities (Lodge, 2003). In this spirit the mining codes:

> "(…) assessing the effects of activities in the Area on the marine environment and which are representative of the environmental characteristics of the Area[113] (…) areas in which no mining shall occur to ensure representative and stable biota of the seabed in order to assess any changes in the biodiversity of

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methods, the risks or effects of pollution of the marine environment (…)".

[112] International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/17, Regulation 31 (6) and 32.

[113] International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at its session in 2016, 13 July 2016, ISBA/22/C/17, para. 30. International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the area, 1st March 2013, ISBA/19/LTC/8 which is modified from the: International Seabed Authority, Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the area, 30 March 2020, ISBA/25/LTC/6/rev.1.

> the marine environment[114] (…) areas that will be used to assess the magnitude of impacts and recovery rate of ecosystem following mining impacts (…)" (Billett, Jones, Weaver, 2019).

The authority provided for the relevant environmental provisions through the IRZ and PRZ, according to which mining exploitation for some countries (Thiel, 2003) provided since the 1980s in the US Deep Seabed Hard Minerals Resources Act and in section 109 (2) (f) the creation of

> "(…) stable reference areas (…) to be used as a reference zone or zones for purposes of resource evaluation and environmental assessment of deep seabed mining in which no mining shall occur (...)"[115].

This was a practice that identified the study on the part of the American National Research Council's Ocean Policy, where it created the institution of IRZ and PRZ according to scientific parameters (Jones, Ardron, Colaço, Durden, (2020).

The most recent exploration regulations have undertaken the changes concerning polymetallic nodules as well as the creation of an exploration phase for marine exploitation (Lodge, 2011)[116]. Marine ecosystems deal with marine ecosystems that are linked to sulphides and ferromanganese crusts, which have led member states to consider exploration in a way to ensure environmental

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114 International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/1

7, Regulation 31.

115United States of America, Deep Seabed Mineral Resources Act, 28 June 1980, US Public Law, 96-283.

116International Seabed Authority, Report of ISA Workshop on the Design of "Impact Reference Zones" and "Preservation Reference Zones" in Deep- Sea Mining Contract Areas: ISA Technical Study No. 21, 2017, 15.

protection[117]. Already the authority through the regulation that has to do with nodules has aligned the former and has established that:

> "(…) the Council, such (monitoring) programmes shall include proposals for areas to be set aside and used exclusively as impact reference zones and preservation reference zones (...)"[118].

The related recommendations that are adopted by the Commission have dealt with the establishment of IRZ and PRZ towards an exploitation phase that confirmed the definitions, with an explicit way, of a test-mining in the activities that makes it necessary to identify the necessary practice[119].

Already in 2011, the Japanese Deep Ocean Resources Company Ltd., has conducted and completed some studies on PRZ and IRZ, as high density nodule area for exploitation. The activities concern the environmental studies to ensure the identified zones in the ecological sector. The shared criteria as ad hoc parameters have selected the location, biota, geological representativeness

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117International Seabed Authority Council, Analysis of the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the area. Part II: Provisions relating to the protection of the marine environment, 24 May 2006, ISBA/12/C/2.

118International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/17, Regulation 31 (6).

119International Seabed Authority Council, Legal and Technical Commission, Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the area, 30 March 2020, ISBA/25/LTC/6/rev.1, Glossary of technical terms, the impact reference zone: "(…) used to assess the effect of test-mining in the Area on the marine environment. The impact reference zone must be in the contractor's area (…)".

in the areas that have to do with exploitation in the next years[120]. In those zones, the tests that are carried out and submitted by the EIS have considered the precautionary choice not related with test-mining but with tests that follow an ad hoc and precise process.

The PRZ and the areas of exploration and exploitation activities within environmental management have to do with the identification of the Areas of Particular Environmental Interest (APEI) (Lodge, 2011)[121]. The APEI are not part of an operator's license but are qualified as "bank accounts for regional biodiversity"[122], where the PRZ are non-permanent monitoring tools[123].

Ecosystems deserve special protection that has to do with the characteristics of an IRZ, which evaluate the impacts, the activities conducted on an environment that protects the areas in which they are made (Jaeckel, 2017)[124].

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[120] International Seabed Authority, Report of ISA Workshop on the Design of "Impact Reference Zones" and "Preservation Reference Zones" in Deep- Sea Mining Contract Areas: ISA Technical Study No. 21, 2017, pp. 28-29.

[121] International Seabed Authority Council, Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone, 26 July 2012, ISBA/18/C/22, para. 6.

[122] International Seabed Authority, Report of ISA Workshop on the Design of "Impact Reference Zones" and "Preservation Reference Zones" in Deep- Sea Mining Contract Areas: ISA Technical Study No. 21, 2017, 11.

[123] Managing Impacts of Deep-Sea resources Exploitation, Report on the implications of MIDAS results for policy makers with recommendations for future regulations to be adopted by the EU and the ISA, 16 December 2016, para. 1.3.

[124] Jaeckel affirms that: "(…) has yet to be discussed whether some of the uses of preservation reference zones could be fulfilled by larger no-mining areas, such as the Areas of Particular Environmental Interest in the Clarion Clipperton Zone (…)".

Mining through the identification of the IRZ and PRZ includes environmental management and monitoring plans. In fact, the Environmental Management and Monitoring Plan (EMMP) has consolidated procedures, activities that deal with offshore mining. The EMMP is under an Environmental Management System (EMS), which seeks to update through additional control the mining operations. That is, a document that manages mining activities within a planning that deals with responsibility, the mechanism to achieve

"(…) a site-specific environmental objectives and Standards in the Environmental Management and Monitoring Plan (...)"[125].

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[125] International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the Area, 22 March 2019, ISBA/25/C/WP.1, article 46 (2) (a). See also the: Draft standard and guidelines on the development and application of Environmental Management Systems developed by the Legal and Technical Commission: "(…) the document, in addition to highlighting the guiding role represented by the ISO 31000, ISO 14001 and ISO 19001 standards, requires operators to follow four phases, namely, a) identify and understand the key issues of exploitation operations which may have an impact on the marine environment; b) ensure that operations are planned and carried out in a systematic and controlled manner to minimize or eliminate harmful effects on the marine environment; c) establish monitoring and follow-up activities; d) evaluate areas for improvement. The annex to the document dedicated to the guidelines is, however, more detailed and consists of several sections, aimed at establishing a system of leadership and division of responsibilities, but also to precisely indicate the operations and monitoring to be carried out. The structure of the guidelines, which also appear complete as regards the indications that an operator is required to follow, lacks a reference to the responsibilities, in terms of environmental management, of the various subjects involved in the operations, and in particular of the Authority and the sponsoring states. In this regard, on several occasions, the Authority has deemed it necessary to make available an environmental responsibility matrix for each of the actors involved. International Seabed Authority Council, Implementing an inspection mechanism for activities in the Area, 20 December 2018, ISBA/25/C/5, note 6). Furthermore, it is not entirely clear at which stage of the approval of a work plan the EMS should be sent to the Authority to be validated. It is not included among the Environmental Plans subjected to the procedure already described for the EIS, but it would not be plausible to believe that it is not evaluated for the purposes of obtaining the exploitation license (...)".

The EMMP aims to ensure standards that relate to the environment and the exploitation operation by containing indications relating to monitoring, the activities carried out as well as reporting tools. The EIA based on regional and environmental management plans. These are the guidelines for the Commission according to Art. 45[126]. The EMMP, which is part of Annex VII of the regulation on exploitation, provided for a pre-established plan an approach, where the protocols, methodologies and application procedures are based on monitoring of the IRZ and PRZ. It is a type of monitoring that positively evaluates the Commission in a phase that authorizes the relative recourse of guidelines that have not been developed through analysis, control, and evaluation mechanisms[127].

The Commission is not suitable in its role to satisfy the ongoing assessment and to ask the authority for further clarifications for the engagement. It evaluates the conduct that is not satisfactory and where the secretary has authorised and issues a compliance notice according to Art. 103 of the regulation[128].

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[126] International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 22 March 2019, ISBA/25/C/WP.1, article 48 (3): "(…) Environmental Management and Monitoring Plan shall cover the main aspects prescribed by the Authority in annex VII to these regulations and shall be: (a) Based on the environmental impact assessment and the Environmental Impact Statement; (b) In accordance with the relevant regional environmental management plan; and (c) Prepared in accordance with the applicable Guidelines, Good Industry Practice, Best Available Scientific Evidence and Best Available Techniques, and consistent with other plans in these regulations, including the Closure Plan and the Emergency Response and Contingency Plan (…)".

[127] International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-fifth session: Addendum, 11 July 2019, ISBA/25/C/19/Add.1. Council of Managers of National Antarctic Programs, Practical Guidelines for Developing and Designing Environmental Monitoring Programmes in Antarctica, January 2005.

Emergency response plans in the context of mining activities in the Area

According to Art. 162, par. 2, lett. w) the Council according to what is established by UNCLOS allows the authority to adopt emergency measures for the prevention and environmental damage by providing for deciding on the modification, suspension of the activities of the operators[129].

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[128] Which is affirmed that: "(…) appears to the Secretary-General on reasonable grounds that a Contractor is in breach of the terms and conditions of its exploitation contract, the Secretary-General shall issue a compliance notice to the Contractor requiring the Contractor to take such action as may be specified in the compliance notice. 2. A compliance notice shall: (a) Describe the alleged breach and the factual basis for it; and (b) Require the Contractor to take remedial action or other such steps as the Secretary-General considers appropriate to ensure compliance within a specified time period. 3. For the purposes of article 18 of annex III to the Convention, a compliance notice issued under this regulation constitutes a warning by the Authority. 4. The Contractor shall be given a reasonable opportunity to make representations in writing to the Secretary-General concerning any aspect of the compliance notice. Having considered the representations, the Secretary-General may confirm, modify or withdraw the compliance notice. 5. If a Contractor, in spite of warnings by the Authority, fails to implement the measures set out in a compliance notice and continues its activities in such a way as to result in serious, persistent and willful violations of the fundamental terms of the contract, Part XI of the Convention and the rules, regulations and procedures of the Authority, the Council may suspend or terminate the exploitation contract by providing written notice of suspension or termination to the Contractor in accordance with the terms of the exploitation contract. 6. In the case of any violation of an exploitation contract, or in lieu of suspension or termination under paragraph 5 above, the Council may impose upon a Contractor monetary penalties proportionate to the seriousness of the violation. 7. Save for emergency orders under article 162 (2) (w) of the Convention, the Council may not execute a decision involving monetary penalties, suspension or termination until the Contractor has been accorded a reasonable opportunity to exhaust the judicial remedies available to it pursuant to section 5 of Part XI to the Convention (…)".

[129] Art. 165, par. 2, lett. k) UNCLOS.

As for exploration activities, the relative obtaining of the license occurs after the submission of a contingency plan to the Secretary General. That is, as part of special procedures that are necessary to decide on the removal of pollutants and for the implementation of periodic exercises[130]. Consequently, a conduct that is not so uniform with the contractors is recognized. Of course, this is information, which formally has to do with the license and is limited to providing a reassurance available for the financial resources and tools that have this objective.

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[130] Preparatory Commission For The International Seabed Authority and For The International Tribunal for the Law of the Sea, Special Commission 3, Draft regulations on prospecting, exploration and exploitation of polymetallic nodules in the Area, 8 February 1990, LOS/PCN/SCN.3/WP.6/Add. 5, article 122. As regards the contract clauses take into account that the operator had to verify first of all the emergency stage and to make the relative report to the secretary general thus showing that the coordinates that have to do with the affected area describe the measures that put, minimize, repair the damage and the threat to serious damage, as a clarification that concerns the monitoring measures employed. At the time that the secretary general, regarding the accident and according to Art. 33 on polymetallic nodules and 35 on sulphides and ferromanganese crusts, has informed the state as a sponsor, the commission, the council, the members of all the authority. After the commission meets to give the relative recommendations to the executive body and the regulations that attributed to the secretary general the general possibility to adopt the measures that can have a temporary character and a duration does not exceed ninety days. Thus, the character of urgency and the measures adopted are put in basis for the relative meetings of responsible bodies that do not exceed the annual recurrences. The geographical origin of the commissioners as well as the delegations of the council did not allow the regular procedures to adopt actions that mitigated in a necessary manner and in a reasonable time the role of the secretary general as in a basic and central role for the operations in the area. After the verification of the accident and the relative absence of the operator's intervention, the regulations provided that the council through the agreements of the member states can adopt the relevant measures to limit the damage in the event of an accident in the near future. Even the standard clause established that the timely actions that are adopted by the contractor put the council to establish that the authority had to adopt, obtain a relative reimbursement for the expenses that are incurred by the operator. The measures in a precise and clear manner are made by the same organization. The adoption of the regulation and the exploration of the related nodules since 2000 within the council expressed a relative concern that noted: “(...) appropriate forms of guarantee to enable the Council to take immediately the necessary measures to implement an emergency order in the event of failure or inability on the part of a contractor to comply with such orders (...)”. The implicit reference to the availability of adequate economic resources and in the absence of others put the contractor not to provide autonomously for the relative adoption of emergency measures so in fact the relative damage was not part of the content and was not also mitigated. Thus it was limited that within the scope of the regulation a form of cooperation between states was foreseen that was not limited to

The contractor should provide information for the relevant vessels that are used for exploration and that ensure the cases of accidents. The technical measures and the willingness to carry out training and exercise activities involve operations that must comply with international safety standards[131]. These are declarations that are assessed by the Commission for the granting of an exploration license. The exploration of polymetallic nodules as we have seen in the Blue Minerals Jamaica Ltd. case, has shown in a precise way the subject of emergency measures. Therefore, the Commission noted that:

> "(…) the granting of the license, reported that the operator has generally guaranteed the prevention, reduction and control of risks through measures that concern the vessels used and measures for the prevention, reduction and control of other hazards at sea (...)"[132].

These are conducts that in the exploration phase have to do with

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notification and information that saw the participation in a direct manner to those involved and under the conditions of providing the relative assistance.

[131] International Seabed Authority Council, Report and recommendations of the Legal and Technical Commission to the Council of the International Seabed Authority relating to an application for approval of a plan of work for exploration for polymetallic sulphides by the Government of Poland, 7 August 2017, ISBA/23/C/11, parr. 25-29.

[132] International Seabed Authority Council, Report and recommendations of the Legal and Technical Commission to the Council of the International Seabed Authority relating to an application for approval of a plan of work for exploration for polymetallic nodules by Blue Minerals Jamaica Ltd., 6 August 2020, ISBA/26/C/22, para. 28.

a high and relative risk of environmental damage as can be seen through Art. 33, par. 8 on the exploration of nodules and Art. 35, par. 8 of the relevant regulations that are applicable to mineral deposits and that establish a test relating to the extractive components for the contractor:

> "(…) the Council with a guarantee of its financial and technical capability to comply promptly with emergency orders (...)"[133].

Within this spirit of emergency, the risks relating to the measures of adoption and verification of an accident for the testing activities can be noted, where the regulations ask the contractors for a financial guarantee, that allows the authority sufficient resources to remedy damage to a marine environment. Thus, the testing activities for the extractive components put the Council to receive guarantees that are requested and remained unapplied.

As for guarantees, they are part of the exploitation activities. Art. 26 of the regulation puts into practice an Environmental Performance Guarantee (EPG), which is actually in favor of the authority for production, form and the appropriate lines for standards (Wolfrum, 2020)[134]. The EPG should think about the costs that run into the activity, the structures, the monitoring costs and the conclusion of exploitation of countries that include the expenses to respond and put the related remedy to the incidents[135]. This is a function that is excluded from the EPG and the regulation proposes, according to part IV of the regulation, that intervenes in the related damages. The operator is able to repair through the financial resources they have available[136].

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[133] International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/17, regulation 33 (8).

[134] Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage. OJ L 143, 30.4.2004, p. 56-75, article 14.

The provisions, in the negotiation time, from PREPCOM[137] and the related draft according to Art. 33 for marine environmental damage inform the Secretary General and the sponsoring state to follow the instructions, which are applied to the Emergency Response and Contingency Plan (ERCP). This is a project that is foreseen through Art. 53 of the draft and requires the contractor to update and maintain with available economic resources, which are necessary to intervene in the related emergency conditions[138].

The related content is part of Annex V of the draft. The control

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135International Seabed Authority, Compilation of the proposals and observations sent by other member States of the Authority, observers and stakeholders on the Draft Regulations in response to Paragraphs 7 and 8 of ISBA/25/C/37: Micronesia, 5-6, January 2020.

136International Seabed Authority, Draft standards and guidelines on the form and calculation of an environmental performance guarantee: Italy, October 2021.

137Preparatory Commission For The International Seabed Authority and for the International Tribunal for the Law of the Sea, Special Commission 3, Draft regulations on prospecting, exploration and exploitation of polymetallic nodules in the area, 27 August 1991, LOS/PCN/SCN.3/WP.6/Add.5/rev.1., article 114.

138International Seabed Authority, Compilation of the proposals and observations sent by members of the Council in response to Paragraphs 7 and 8 of ISBA/25/C/37: Australia, 2019, 42.

for the risks of the accident ensure the safety of the personnel. Any information that has to do with emergency situations and the attribution of responsibilities can be activated to the plan in question. The ERCP is part through Annexes with No. VII and VIII in Directive No. 2013/30/EC that delas with the safety of offshore operations related to the oil and gas sector[139]. Prevention that was decided after the accident that occurred in 2010 on the related DeepWater Horizon oil platform in the Gulf of Mexico by identifying emergency procedures that respond to the exploitation of mineral resources in the area.

Within this framework, many elements of differentiation are presented in a precise manner. The directive itself has asked to frame elements that have to do with tools, procedures of machinery that are available, limit the risk for environmental damage[140] and do not respond to any regulation negotiation.

The ERCP respects the Good Industry Practice and the guidelines, standards for the Commission. It has highlighted a compilation with all these guidelines, as standards that reach a preceptive character and that are much closer to the relative directive[141].

139Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC Text with EEA relevance. OJ L 178, 28.6.2013, p. 66–106.

140Annex 1.

141International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-fifth session: Addendum, 11 July 2019, ISBA/25/C/19/Add.1, Enclose I.

The emergency plan has been approved by the authority that requests the exploitation license with other environmental plans[142]. The Commission moves the operator on the emergency plan to have the relative changes that they deem appropriate. Another element that differs, has to do with an external plan for emergencies. The Authority prepares its relative organization in an effective way for the control and evaluation of a probable accident[143].

The negotiation of the draft has already considered the financial need of the authority for an emergency intervention and within the framework of the protection of the marine environment[144].

The regulation considers the attribution within a role that activates the emergency procedures thus avoiding a system of responses that share the emergencies foreseen by ad hoc plans and according to the spirit of the Secretary General, who intervenes and who supports in the powers the relative character that is not administrative to the conventional provisions. In such a way they are transferred to the Secretary General executive functions in emergency cases.

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[142] International Seabed Authority Council, Legal and Technical Commission, Draft Regulations on Exploitation of Mineral Resources in the area, 9 July 2018, ISBA/24/LTC/WP.1/rev.1, draft regulation 7.

[143] European Parliament and Council of the European Union, Directive on the safety of offshore oil and gas operations and amending Directive 2004/35/EC, 12 June 2013, 2013/30/EU, OJ L 178/66, Article 29.

[144] According to article 120: "(…) contractor does not take the action required by the terms and conditions of its contract after having received reasonable notice or does not promptly comply with an emergency order to prevent serious harm to the marine environment arising out of activities in the Area, the Council by itself or through arrangements with others on its behalf may take such reasonable measures as are necessary to prevent and contain, minimize or repair any such harm to the marine environment (…)". Preparatory Commission for The International Seabed Authority and for the International Tribunal for the Law of the Sea, Special Commission 3, Draft regulations on prospecting, exploration and exploitation of polymetallic nodules in the Area, 8 February 1990, LOS/PCN/SCN.3/WP.6/Add. 5, article 120. Preparatory Commission for The International Seabed Authority and for the International Tribunal for the Law of the Sea, Statement to the Plenary by the Chairman of Special Commission 3 on the Progress of Work in that Commission, 28 March 1990, LOS/PCN/L.79, p.13. Preparatory Commission For The International Seabed Authority and for the International Tribunal for the Law of the Sea, Statement to the Plenary by the Chairman of Special Commission 3 on the Progress of Work in that Commission, 28 March 1990, LOS/PCN/L.79, p. 9.

What are the mechanisms for inspection and mineral exploration activity in the area?

The Authority according to Art. 153 UNCLOS:

> "(…) shall have the right to inspect all installations in the Area used in connection with activities in the Area (…)" (Mann-Borghese, 1982; Walker, 2004; Schiano Di Pepe, 2014; Buitendijk, 2020)[145].

These are rules that have laid the foundations for the authority for future regulations that have conformed a relative inspection model, which has been limited to the relative body that has had to deal with the relative operations to be developed[146].

According to Art. 162, par. 2 UNCLOS, the Council was to establish a management control, as a mechanism that supervised the inspectors and that complied with the rules, regulations, procedures that the Authority and the contractual terms agreed. Thus, Art. 165 and the Commission recommended the management and supervision and Art. 162[147] the creation of a mechanism that managed the inspections[148]. The UNCLOS attributed as a subsidiary body operational competences that had to do with inspections according to par. 3 of Art. 16. Its members operated on inspections and supervision representing a atate and a Contracting Party[149].

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[145] Walker affirms: "(...) used in UNCLOS [the term] means a human-made edifice in the territorial sea, in the EEZ, on the continental shelf, in archipelagic waters, or in ocean space governed by UNCLOS, which is usually employed to explore for or exploit marine resources (…)". European Parliament and Council of the European Union, Directive on the safety of offshore oil and gas operations and amending Directive 2004/35/EC, 12 June 2013, 2013/30/EU, Official Journal L 178/66, which is affirmed that: "(…) fixed or mobile structure, or a combination of structures permanently interconnected by bridges or other structures, used for offshore oil and gas activities or related to such operations. Installations include mobile offshore drilling platforms only when they are stationed offshore for drilling, production or other activities related to offshore oil and gas operations (…)".

[146] Annex, Art. 17, par. b) lett. VIII UNCLOS.

The inspections, thus, constituted a framework for the protection of the marine environment and developed the Authority's related regulations, which explored mineral resources and which did not provide other rules for the conduct of inspection activities. Limiting impacts and exploration activities had to do with marine ecosystems that posed greater risks to the protection of the marine environment, where member states excluded integration and provisions on inspection mechanisms according to contractual clauses and standards in the relevant field.

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[147] Art. 165 (2) (m) UNCLOS has affirmed: “(…) make recommendations to the Council regarding the direction and supervision of a staff of inspectors who shall inspect activities in the Area to determine whether the provisions of this Part, the rules, regulations and procedures of the Authority, and the terms and conditions of any contract with the Authority are being complied with (…)”.

[148] International Seabed Authority Council, Implementing an inspection mechanism for activities in the area, 20 December 2018, ISBA/25/C/5, para. 2.

[149] Art. 165 (3) UNCLOS affirms that: “(…) members of the Commission shall, upon request by any State Party or other party concerned, be accompanied by a representative of such state or other party concerned when carrying out their function of supervision and inspection (…)”.

The draft of the 1990 of PREPCOM[150] as well as the clauses of the Authority are carried out through the relevant inspections which:

> "(…) monitor the Contractor's compliance with the terms and conditions of this contract and the Regulations; and (b) monitor the effects of such activities on the marine environment (...)"[151].

These are operators who place obligations of assistance to the inspectors relating to the performance of the functions that accepted and facilitated boarding, cooperated in the inspection of the vessel and installation, ensured access to instruments and related facilities interfered with the work of the inspectors and provided facilities for their own stay.

The inspectors interfered and regulated the exploratory operations and ensured, with confidentiality, the data for the relevant registers, thus, observing that the clauses did not operate to the authority conducted inspections, judged with sufficient manner the assessments that complied with the terms for the protection of the marine environment[152].

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[150] Preparatory Commission For The International Seabed Authority and For the International Tribunal for the Law of the Sea, Special Commission 3, Draft regulations on prospecting, exploration and exploitation of polymetallic nodules in the area, 8 February 1990, LOS/PCN/SCN.3/WP.6/Add. 5, article 115.

[151] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010, ISBA/16/A/12/rev.1., Annex IV, Section 14.

[152] International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-sixth session: Addendum, 25 September 2020, ISBA/26/C/12/Add.1, parr. 7-14.

Damages and Liability in Area Activities

Speaking of liability and damages we refer to Art. 139, par. 2 UNCLOS, where it was admitted that:

> "(...) prejudice to the rules of international law and Annex III, article 22, damage caused by the failure of a State Party or international organization to carry out its responsibilities under this Part shall entail liability; States Parties or international organizations acting together shall bear joint and several liability. A State Party shall not however be liable for damage caused by any failure to comply with this Part by a person whom it has sponsored under article 153, paragraph 2(b), if the State Party has taken all necessary and appropriate measures to secure effective compliance under article 153, paragraph 4, and Annex III, article 4, paragraph 4 (...)"[153].

The states requested the obligation of compensation in case of violation of international obligations and the production of damages. I such cases, the operator was not connected with the state but had to respond to the causality of the illicit act and the environmental damage[154].

153Art. 139, par. 2 UNCLOS.

154See Art. 8 of the Wellington Convention, which is affirmed that: "(…) Operator undertaking any Antarctic mineral resource activity shall take necessary and timely response action, including prevention, containment, clean up and removal measures, if the activity results in or threatens to result in damage to the Antarctic environment or dependent or associated ecosystems. The Operator, through its Sponsoring State, shall notify the Executive Secretary, for circulation to the relevant institutions of this Convention and to all Parties, of action taken pursuant to this paragraph. 2. An Operator shall be strictly liable for: damage to the Antarctic environment or dependent or associated ecosystems arising from its Antarctic mineral resource activities, including payment in the event that there has been no restoration to the status quo ante; loss of or impairment to an established use, as referred to in Article 15, or loss of or impairment to an established use of dependent or associated ecosystems, arising directly out of damage described in subparagraph (a) above; loss of or damage to property of a third party or loss of life or personal injury of a third party arising directly out of damage described in subparagraph (a) above; and reimbursement of reasonable costs by whomsoever incurred relating to necessary response action, including prevention, containment, clean up and removal measures, and action taken to restore the status quo ante where Antarctic mineral resource activities undertaken by that Operator result in or threaten to resulting damage to the Antarctic environment or dependent or associated ecosystems. 3. Damage of the kind referred to in paragraph 2 above which would not have occurred or continued if the

The international obligations of the states emphasized a framework of exploration for the exploitation of seabeds recognizing the related obligations for the conduct in a direct manner[155]. In this spirit Art. 4, par. 4 of the Annex, considered the responsibility that ensured the domestic legal systems that

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Sponsoring State had carried out its obligations under this Convention with respect to its Operator shall, in accordance with international law, entail liability of that Sponsoring State. Such liability shall be limited to that portion of liability not satisfied by the Operator or otherwise. Nothing in subparagraph (a) above shall affect the application of the rules of international law applicable in the event that damage not referred to in that subparagraph would not have occurred or continued if the Sponsoring State had carried out its obligations under this Convention with respect to its Operator. 4. An Operator shall not be liable pursuant to paragraph 2 above if it proves that the damage has been caused directly by, and to the extent that it has been caused directly by an event constituting in the circumstances of Antarctica a natural disaster of an exceptional character which could not reasonably have been foreseen; or armed conflict, should it occur notwithstanding the Antarctic Treaty, or an act of terrorism directed against the activities of the Operator, against which no reasonable precautionary measures could have been effective. 5. Liability of an Operator for any loss of life, personal injury or loss of or damage to property other than that governed by this Article shall be regulated by applicable law and procedures. 6. If an Operator proves that damage has been caused totally or in part by an intentional or grossly negligent act or omission of the party seeking redress, that Operator may be relieved totally or in part from its obligation to pay compensation in respect of the damage suffered by such party. Further rules and procedures in respect of the provisions on liability set out in this Article shall be elaborated through a separate Protocol which shall be adopted by consensus by the members of the Commission and shall enter into force according to the procedure provided for in article 62 for the entry into force of this Convention. Such rules and procedures shall be designed to enhance the protection of the Antarctic environment and dependent and associated ecosystems. Such rules and procedures: i. may contain provisions for appropriate limits on liability, where such limits can be justified; ii. without prejudice to article 57, shall prescribe means and mechanisms such as a claims tribunal or other for a by which claims against Operators pursuant to this Article may be assessed and adjudicated; iii. shall ensure that a means is provided to assist with immediate response action, and to satisfy liability under paragraph 2 above in the event, inter alia, that an Operator liable is financially incapable of meeting its obligation in full, that it exceeds any relevant limits of liability, that there is a defence to liability or that the loss or damage is of undetermined origin. Unless it is determined during the elaboration of the Protocol that there are other effective means of meeting these objectives, the Protocol shall establish a Fund or Funds and make provision in respect of such Fund or Funds, inter alia, for the following: -financing by Operators or on industry wide bases; ensuring had at their disposal the individual countries and the related sponsored operators that are in conformity with the UNCLOS as well as the rules of authority according to the contract that has been established (Zhang, 2013; König, 2016; Geddis, 2017).

The Chamber had the responsibility:

> "(…) adequate means, to exercise best possible efforts, to do the utmost, to obtain this result (...)"[156],

that is, obligations of conduct, of diligence and certainly not of the result according to the forms, the limits provided for by the exploration regulations, and the duty to cooperate with the authority and the application of the precautionary principle that

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the permanent liquidity and mandatory supplementation thereof in the event of insufficiency; -reimbursement of costs of response action, by whomsoever incurred. 8. Nothing in paragraphs 4, 6 and 7 above or in the Protocol adopted pursuant to paragraph 7 shall affect in any way the provisions of paragraph 1 above. 9. No application for an exploration or development permit shall be made until the Protocol provided for in paragraph 7 above is in force for the Party lodging such application. 10. Each Party, pending the entry into force for it of the Protocol provided for in paragraph 7 above, shall ensure, consistently with Article 7 and in accordance with its legal system, that recourse is available in its national courts for adjudicating liability claims pursuant to paragraphs 2, 4 and 6 above against Operators which are engaged in prospecting. Such recourse shall include the adjudication of claims against any Operator it has sponsored. Each Party shall also ensure, in accordance with its legal system, that the Commission has the right to appear as a party in its national courts to pursue relevant liability claims under paragraph 2(a) above. 11. Nothing in this Article or in the Protocol provided for in paragraph 7 above shall be construed as to: a. preclude the application of existing rules on liability, and the development in accordance with international law of further such rules, which may have application to either states or Operators; or b. affect the right of an Operator incurring liability pursuant to this article to seek redress from another party which caused or contributed to the damage in question. 12. When compensation has been paid other than under this Convention liability under this Convention shall be offset by the amount of such payment (…)".

155ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1 February 2011, ITLOS reports 2011 p. 10, parr. 108 and 121.

156ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS reports 2011 p. 10, para. 110.

was used as we have seen from the previous paragraphs of BAT and BEP.

After the verification of the damage, the choice of operation according to the UNCLOS was in contrast with international practice and customary norms, which provided according to Art. 2 of the articles on the international responsibility of states (Liakopoulos, 2020a)[157], that a state was bound by an obligation of reparation according to the unlawful conduct, that cause material damage (Liakopoulos, 2021)[158].

The damage is thus attributable to a nexus that has to do with a cause-effect relationship connected with the state offence, which excludes that the sponsor is liable for damages caused and not attributable according to an unlawful act. The relative liability for damages of the operators is connected with Art. 22, according to which the:

> "(...) contractor shall have responsibility or liability for any damage arising out of wrongful acts in the conduct of its operations, account being taken of contributory acts or omissions by the Authority (...) liability in every case shall be for the actual amount of damage (...)"[159].

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[157] United Nations, Yearbook of the International Law Commission, 2001, vol. II, Part Two, Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, p. 36, para. 9.

[158] Case concerning the difference between New Zealand and France concerning the interpretation or application of two agreements, concluded on 9 July 1986 between the two states and which related to the problems arising from the Rainbow Warrior Affair, Award, 30 April 1990, reports of International Arbitral Awards, Volume XX, para. 110.

[159] Annex, article 22UNCLOS. Third United Nations Conference on the Law of the Sea, Informal Composite Negotiating Text, 15 July 1977, A/CONF.62/WP. 10, Annex II, para. 16: "(…) responsibility or liability for wrongful damage arising out of the conduct of operations by the Contractor shall lie with the Contractor (…)".

The choice made by UNCLOS has recognized the liability, according to which the operator is against the exploratory exploitation contract and the applicable regulations and rules are part of international law[160]. This is part of the standard clause of a contract that explores clause no. 7.1. relating to the exploitation contract which stated that:

> "(...) Contractor shall be liable for the actual amount of any damage, including damage to the marine environment, arising out of its wrongful acts or omissions (…)". Furthermore, Art. 31, par. 5 relating to the exploration of polymetallic nodules clarified that the content of obligations connected to the operator have established that: "(...) contractor shall take necessary measures to prevent, reduce and control pollution and other hazards to the marine environment arising from its activities in the Area as far as reasonably possible, applying a precautionary approach and best environmental practices (...)"[161].

The sponsoring state that links the operator's liability has subordinated and verified the violation for diligence, which is required by the marine environment for the related activities conducted and which are based on the end of exploration activities (Matz-Lück, Van Doorn, 2017)[162].

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[160] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010, ISBA/16/A/12/rev.1., Annex IV, Section 13.1.

[161] International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/17, regulation 31.

[162] International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/17, regulation 30. Preparatory Commission for The International Seabed Authority and for the International Tribunal for the Law of the Sea, Special Commission 3, Draft regulations on prospecting, exploration and exploitation of polymetallic nodules in the Area, 8 February 1990, LOS/PCN/SCN.3/WP.6/Add. 5, article 122. Preparatory Commission for The International Seabed Authority and for

The Chamber stated in this regard that:

> "(…) the relationship between the liability regime of the sponsoring state and that applicable to the contractor (…) since the state is liable only for damages that have occurred as a result of its unlawful conduct (…) UNCLOS does not admit the case of joint liability between the two subjects. This is the case, the Chamber argues, only if different subjects have contributed to the same damage (…) so that full reparation can be claimed from all or any of them (…)"[163].

Art. 139 of UNCLOS, rather, establishes the existence of two parallel responsibilities that have, at most, as a common element the damage caused by the contractor.

Of course, the Authority is not exempt from any type of liability. According to Art. 22 of the Annex the:

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the International Tribunal for the Law of the Sea, Statement to the Plenary by the Chairman of Special Commission 3 on the Progress of Work in that Commission, 28 March 1990, LOS/PCN/L. 79, para. 65. Matz-Lück, Van Doorn affirmed that: "(…) public international law due diligence is an obligation which is owed by states not by private entities. Yet the starting point for discussing due diligence is defining the degree of responsibility of states particularly when it comes to activities of private persons under their jurisdiction and control. in this context the establishment of due diligence obligations serves to bridge the gap that would exist, if the behaviour of private entities contradicts a rule of public international law but cannot be attributed to the state. Attribution is a central element of identifying an internationally wrongful act by a state (...) By establishing due diligence obligations, a state can be held responsible for a breach of public international law if the state has not done "enough" to steer the behaviour of privates towards compliance with substantive rules of international law or has not controlled compliance. International case law knows several scenarios where behaviour by private entities that cannot be attributed to the state of nationality because the narrow condition for Attribution are not met is turned into a case of state responsibility via the establishment of due diligence obligations the relationship between state parties to the LOSC and private entities under domestic legal systems incorporates both nationality as well as effective control (…) if article 192 established a due diligence obligation to ensure that private entities refrain from practises that result in significant arms to the marine environment, the state would be responsible for the behaviour of the private entity, if it has not done all it had to do to prevent breaches (…)". International Seabed Authority Council, Outstanding Issues with Respect to the Draft Regulation on Prospecting and Exploration for Polymetallic Nodules in the Area, March 2000, ISBA/6/C/INF.1, para. 16.

[163] ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS reports 2011 p. 10, para. 201.

> “(…) Authority shall have responsibility or liability for any damage arising out of wrongful acts in the exercise of its powers and functions (...)”[164].

The Authority’s liability is also included in the standard clause 16.4 of the exploration contract and in par. 7.4 of the extraction contract, where the organization has had the opportunity to indemnify the operator and its subcontractors and all the people, who are involved in the related exploration operations are:

> “(…) against all claims and liabilities (…) arising out of any wrongful act or omissions (...)”[165].

The attribution of responsibilities has highlighted gaps. They ensure the general application based on the international law of the polluter pays in the draft on mining. The international responsibility of the sponsoring state presented to a wrongful act, that caused the harmful event and caused a damage capable of repairing, allows the chamber and the sponsoring state to risk and not repair all the damage. Thus, the chamber states that the:

> “(...) Authority may wish to consider the establishment of a trust fund to compensate for the damage not covered (...)”[166].

This is an option that is provided for by the same Art. 235, par. 3 UNCLOS, that requires together with the compulsory insurance of the contractor as a way of guaranteeing the repair of any damage (Damar, 2009). A relative gap is noted that raises issues about the damage caused, where an unlawful act of the operator and the state that sponsors despite that the operator complies with the terms of the contract, recommendations and regulations of the authorities make use of a request for diligence, where the damage was produced (Plakokefalos, 2017). It is defined as an accidental fact (Handl, 1985) and is not part of an unlawful act, according to which the obligations of reparation are provided for by the convention (Barboza, 1994)[167].

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[164] Annex, Art. 22 UNCLOS.

[165] International Seabed Authority Council, Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, 25 July 2013, ISBA/19/C/17, Annex IV, section 16.4.

[166] ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS reports 2011 p. 10, para. 205.

The related damages are as follows:

> "(…) despite implementation of the duties of prevention (…) preventive measures were followed but actually proved inadequate, or where the particular risk that caused the transboundary harm could not be identified at the time of initial authorization (…) transboundary harm could occur accidentally or it may take place in circumstances not originally anticipated (…)" (Liakopoulos, 2020a)[168].

The relative cases that are most likely for the malfunction of an instrument, which uses the nodules of the seabed to a system that reports the minerals and an incorrect positioning of a dynamic nature, has to do with the vessels and the extraction structures of control[169], thus determining the hydraulic fluids, other waste materials for the production that has to do with the pollution and at depth levels that create visible results to the relative bathyal plane. The extraction sediments with incorrect results are dispersed in the depth and respect that predicted by scientific models that contaminate the water column in an unexpected way. The liability of the operator binds the lack of diligence and the accidental damage of the victims, who leave without the repairs (Goldie, 1970; Kelson, 1972).

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[167] Barboza affirms that: "(…) general proposition, we believe that it may be safely stated that damage is never indifferent to law, even damage which is not inflicted purposely or negligently. Transboundary damage deriving from activities which are lawful, though hazardous, is not therefore indifferent to international law (…)".

[168] United Nations, Yearbook of the International Law Commission, Yearbook of the International Law Commission, 2006, vol. II, Part Two, Draft principles on the allocation of loss in the case of transboundary harm arising out of hazardous activities, with commentaries, principle 1, para. 7.

[169] "(…) must be taken into account that there are not only accidents caused by the negligence of an offshore operator but there are also risks of "natural-hazard triggered technological accidents (Natech)" for offshore industrial installations and the ability to recover from those accidents is proportional to the economic capacity of

Limiting liability for environmental damage that is caused by states and to the related Commission of an unlawful act is not sufficient to conclude a treaty according to the old Convention on Liability for Damage Caused by Space Objects of 1972[170] and/or other agreements that are already existing and are within the field of nuclear energy, and in the transport of related dangerous materials (Kwiatkowska-Czechowska, 1979-1980)[171].

Art. 304 of the UNCLOS has already established that

> "(…) the provisions (…) regarding responsibility and liability for damage are without prejudice to the application of existing rules and the development of further rules regarding responsibility and liability under international law (…)".

Art. 235, par. 3 of the UNCLOS has highlighted the guarantee for a type of adequate compensation for damages resulting from the related pollution. States cooperate in the related development of international rules for damages and on criteria and procedures

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the operator (…)".

[170] Convention on the international liability for damage caused by space objects which is concluded 29 March 1972, effective 1 March 1972, 961 UNTS 187.

[171] See also Art. 304 UNCLOS.

that have to do with the related payment of special funds for the obligation and the related insurance for operators[172].

UNCLOS according to the rules relating to the matter of liability for damages also calls for cooperation with the work carried out by international organizations that are relevant for the mechanisms of adequate compensation for damages, that are produced by pollution[173]. It works within a context that recognizes its members states to include the development of other rules on liability for activities in the area and as the Chamber has highlighted in the subject:

> "(…) potential for damage, particularly to the marine environment, may increase during the exploitation phase, it is expected that member states of the ISA will further deal with the issue of liability in future regulations on exploitation (...)"[174].

For dangerous activities, the aim of framing the ratione materiae and the provisions that do not foresee specific regimes for the seabed, hydrocarbon pollution and the establishment of an international fund for pollution damage, is reached in the 2003 Protocol (Rodriguez-Lucas, 2011)[175].

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[172] See Art. 235 UNCLOS which is affirmed that: "(…) States are responsible for the fulfillment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law. 2. States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction. 3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, states shall cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds (…)".

[173] Art. 235, par. 2 UNCLOS.

[174] ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS reports 2011 p. 10, para. 168.

What is the relationship for the node of compensable damage?

When we talk about compensable damage we are referring to the authority that looks at development and liability for damage. The Chamber stated that both UNCLOS and the Authority regulations have clarified that compensable damage was connected with the activities of the area, i.e. extending to a marine environment the related resources that have to do with the common heritage of humanity[176].

The Chamber responded to the need that emphasized the legal status of marine areas that are identified in the UNCLOS, according to the terms of reparation, thus adopting to the marine environment the regulations of the authority, the damage of the area and the resources that characterize the marine environment, the fragility and incorporation of ecosystems. The environmental damage and the preventive measures that are adopted after the damaging event spread through the clean-up and the restoration measure bringing the environment back to

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175Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 which is concluded on 16 May 2003, entered into force on 3 March 2005.

176ITLOS, Seabed Disputes Chamber, Responsibilities and obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, 1st February 2011, ITLOS reports 2011 p. 10, para. 178.

conditions that have to do with pollution (Sersic, 2003).

The Authority's regulations include preventive measures according to the circumstances that have occurred. The control of the Commission to an emergency plan is done through the Council and by other subjects who are charged for a specific cost. The difficulty for the compensation of environmental and ecological damage implies the negative results of qualitative, quantitative nature of the natural components that do not return to production in the short term. The value of the quality of the natural components for the restoration is not realized as an interim damage and in the relative counterpart, when the environment is irremediably compromised.

The environment does not have a stable market value to be able to amount and is not calculable according to money rules. So in the case of the area under consideration, the absence of baseline allows to understand relating to the ocean environment the evaluation of the extent of the damage. So the civil liability for ecological damage as non-economic loss, is subject to an economic evaluation where the costs for reasonable measures restore the compensation.

The International Law Commission has highlighted for ecological damage that:

"(…) less real and compensable than the damage to property (…)" (Voigt, 2021)[177].

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[177] United Nations General Assembly, Report of the International Law

And also at the international level of jurisprudence in the Lake Lanoux case indirectly it has been argued that:

> "(…) the compensation of environmental damage with reference to the changes in the composition, temperature and other characteristics of the waters of the Carol River (...)"[178].

The ICJ has also stated:

> "(...) the damage to the environment and the consequent impairment or loss of the ability of the environment to provide goods and services, is compensable under international law (...)"[179].

The economic and social benefits and the case of mining exploitation are connected with the tolerance of a damage that is caused by them (Wolfrum, 1990; Barboza, 1994). In the case of the ICJ for the nuclear test it was stated that:

> "(...) not all the damages will create a legal course of action (…)" (Sands, Peel, Fabra, Mackenzie, 2017).

Part XI UNCLOS and the regulations and recommendations that are related to exploration and the related reference to Art. 145 (Mengerink, 2018)[180], propose to the area's activity a minimum threshold for ecological damage compensable to a serious, significant harm, that has opened the basis for the reparation of damages for minor entities and that can detect the depths that

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Commission on the work of its fifty-third session, 23 April-1 June and 2 July-10 August 2001, A/56/10, p. 98.

[178] Lake Lanoux Arbitration, Award, 16 November 1957, reports of International Arbitral Tribunal, Vol. 12, 289ss: https://www.ecolex.org/details/court-decision/lake-lanoux-arbitration-france-v-spain-b09cb956-2cb5-479e-ba3a-bbfd4f7b68fc/

[179] ICJ, Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua), Compensation, Judgment, I.C.J. reports 2018, p. 15, para. 42.

[180] International Seabed Authority council, Draft Regulations on Prospecting and Exploration for Polymetallic nodules in the Area, 29 April 1998, ISBA/4/C/4/rev.1, regulation 28. International Seabed Authority Council, Analysis of the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area, 24 May 2006, ISBA/12/C/2, para. 28.

occur even by going against the respect of the conventions on civil liability, ecosystems in the area and the related obligation of reparation. Within the civil liability system the compensation levels limit the liability for damages to the operators. The adoption of measures and the protection of the environment are equivalent for pollution[181], where the objective standards for liability and the operators continue to consider with a risky and socially useful way.

Hydrocarbons pollution provided for a compensation limit that did not include ad hoc limits[182], but only a policy choice within the context of the area, which evaluates the political bodies and in particular the Council. The liability cap determines the compensation of the damage and the insurance premiums. Operators argue that civil liability requires the stipulation of insurance to guarantee financial availability for the payment of the amount due and as compensation. Art. 235, par. 3 UNCLOS and the standard clauses relating to the exploration contract required the operator:

“(…) appropriate insurance policies with internationally recognized carriers, in accordance with generally accepted international maritime practice (...)”[183].

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[181] United Nations, Yearbook of the International Law Commission, 2006, vol. II, Part Two, Draft principles on the allocation of loss in the case of transboundary harm arising out of hazardous activities, with commentaries, principle 4, p. 80, para. 21.

[182] Convention on Civil Liability for Damage resulting from Activities Dangerous to the Environment, article 8 (d).

[183] International Seabed Authority Assembly, Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the area, 15 November 2010,

The exploitation code according to Art. 36 established that the contractor could stipulate an insurance that had to put the authority among the relevant insurance subjects[184].

High risk and strict liability, channel the operator to a compensation limit (Vold, 1953). The regulation for mining and the Authority led to the identification of a risk for damage, that compensates through insurance[185].

The Secretariat thus commits itself to an investigation that has to do with insurances that are available within the system of liability for environmental damage[186]. Excessive onerousness also reduces the participation of the activities in the area. For this reason, contractors provide financial guarantees that are sufficient to repair the damage also determining and respecting what is foreseen by the same UNCLOS for the mining exploitation of the area[187].

ISBA/16/A/12/rev.1, Annex IV, Section 16.5.

184International Seabed Authority Council, Draft regulations on exploitation of mineral resources in the area, 22 March 2019, ISBA/25/C/WP.1, regulation 36.

185International Seabed Authority, Compilation of the proposals and observations sent by members of the Council in response to Paragraphs 7 and 8 of ISBA/25/C/37: France, December 2019, p. 5.

186International Seabed Authority, Comments on the draft regulations on the exploitation of mineral resources in the area, 4 December 2018, ISBA/25/C/2, para. 11.

187Art. 150, par. d) UNCLOS.

Creation of marine protected areas and international seabed authority

The authority through the development of the Regional Environmental Management Plan (REMP) and within the protection of the marine environment, has tried to plan a marine space with parameters oriented towards a decision-making process of objectives that have had an eco-sustainability character[188]. Protecting specific areas and their biological, geological peculiarities puts the REMP in objectives and targets, where the protection establishes a regional and global level, that follows the Authority in timing and the same Council to affirm that the:

> "(...) REMP aim to give (…) effect to the precautionary approach as called for by the regulations (...)"[189].

In 2012 we saw the Clarion-Clipperton fracture that paved the way for other REMPs[190], as well as the urgency of exploration contracts that were of interest[191]. Part of them transformed exploitation licenses and the related risk, where the area of cumulative impacts were very significant. The implementation phases of the REMP began in 2007 after the adoption of the Kaplan project and the existence of biological communities with ecosystem characteristics that were unknown[192].

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[188] International Seabed Authority Council, Preliminary strategy for the development of regional environmental management plans for the area, 16 January 2018, ISBA/24/C/3, para. 5.

[189] International Seabed Authority Council, Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone, 26 July 2012, ISBA/18/C/22, para. 1.

[190] Workshop on the Development of a REMP for the Area of the Northern Mid-Atlantic Ridge with a Focus on Polymetallic Sulphides Deposits held from November 23 to December 4, 2020. The Workshop on the Regional Environmental Management Plan for the Area of the Northwest Pacific from October 26 to November 6, 2020 and the Workshop on the Regional Environmental Plan for the Area of the Northern Mid Atlantic Ridge November 25-29, 2019.

[191] International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to an application for approval of a plan of work for exploration for polymetallic nodules submitted by Blue Minerals Jamaica Ltd., 10 December 2020, ISBA/26/C/27/rev.1.

The General Assembly of the United Nations through Resolution 63/111 highlighted the urgency that international organizations had:

> "(…) to integrate nd improve, based on the best available scientific information and the precautionary approach and in accordance with the [United Nations] Convention [on the Law of the Sea] and related agreements and instruments, the management of risks to the marine biodiversity of seamounts, cold water corals, hydrothermal vents and certain other underwater features (…)" (Humphreys, Clark, 2019)[193].

Thus, the Authority designated conservation areas that safeguarded biodiversity[194]. It considered as leaders the ecosystem functions, also defined as APEI, which applied modern principles for environmental management in marine areas and beyond national jurisdiction[195]. The APEI identification was based on scientific principles that respected the legal framework and reported in the area legitimate interests for exploration licenses in the area.

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[192] International Seabed Authority Council, Legal and Technical Commission, Proposal for the designation of certain geographical areas in the Clarion-Clipperton Fracture Zone, 11 March 2009, ISBA/15/LTC/4, parr. 4-7. International Seabed Authority, Biodiversity, species ranges, and gene flow in the abyssal Pacific nodule province: predicting and managing the impacts of deep seabed mining: Technical study no. 3, 2008. United Nations General Assembly, Oceans and the law of the sea, 23 December 2003, A/rES/58/240, para. 52; United Nations General Assembly, Oceans and the law of the sea, 17 November 2004, A/RES/59/24, parr. 70 e 72; United Nations General Assembly, Oceans and the law of the sea, 29 November 2005, A/RES/60/30, parr. 71- 77; United Nations General Assembly, Oceans and the law of the sea, 20 Deecember 2006, A/RES/61/222, parr. 96-101. United Nations General Assembly, Oceans and the law of the sea, 22 December 2007, A/RES/62/215, parr. 99 and 109-112. United Nations General Assembly, Oceans and the law of the sea, 5 December 2008,63/111, parr. 117 and 132-135.

[193] United Nations General Assembly, Oceans and the law of the sea, 5 December 2008, A/63/111, para. 132.

[194] https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-10&chapter=21&clang=_en. See also in argument: https://iucn.org/sites/default/files/2024-01/iucn-bbnj-treaty-policy-brief.pdf

In this regard, the Commission established a working group[196] that improved, expanded the drafting of the REMP[197], as a help body that relocated the areas that protected sectors that were already licensed (Lodge, 2011)[198]. The Council also showed in practice its interest in mining for private companies[199] given the exploration licenses of Nauru Ocean Resources Inc.[200], Tonga Offshore Mining Ltd.[201], and of other continuous contracts

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195International Seabed Authority Council, Legal and Technical Commission, Rationale and recommendations for the establishment of preservation reference areas for nodule mining in the Clarion-Clipperton Zone, 28 March 2008, ISBA/14/LTC/2, para. 20.

196International Seabed Authority Council, Summary report of the Chairman of the Legal and Technical Commission on the work of the Commission during the fourteenth session, 28 May 2008, ISBA/14/C/8, para. 16.

197International Seabed Authority Council, Legal and Technical Commission, Environmental Management Plan for the Clarion-Clipperton Zone, 13 July 2011, ISBA/17/LTC/7.

198International Seabed Authority Council, Proposal for an environmental management plan for the Clarion-Clipperton Zone, 6 April 2011, ISBA/17/LTC/2, parr. 17 and 22.

199International Seabed Authority Council, Summary report of the Chair of the Legal and Technical Commission on the work of the Commission at its seventeenth session, 13 July 2011, ISBA/17/C/13, para. 27.

200International Seabed Authority Council, Legal and Technical Commission, Application for approval of a plan of work for exploration for polymetallic nodules in the Area by Nauru Ocean Resources Incorporated, 21 June 2011, ISBA/17/LTC/L.4.

201International Seabed Authority Council, Legal and Technical Commission, Application for approval of a plan of work for exploration by Tonga Offshore Mining Ltd., 14 June 2011, ISBA/17/LTC/L.5.

signed in time. The Council, through the commitment of the REMPs[202] and in the absence of unanimous positions, provisionally adopted[203] a plan for new scientific meetings of a definitive approval[204]. It has also approved Recommendations formed in a scientific basis (Christiansen, Durussel, Guilhon, Singh, Unger, 2022)[205].

Thus, the REMP is recognized with a character that considers regular reviews every five years[206]. The Commission adopted the REMP for the Clarion-Clipperton fracture zone[207] thus establishing and applying for a period of three years a moratorium on the related APEI activities for the following five. The Authority declared the marine protected areas with a binding and recommendatory manner for the environmental plan (Leary, 2007). The Council that established the APEI expressed the resolutions of the General Assembly and the related Articles 162, 145 and 165 UNCLOS (Nyka, 2020). For some countries the legal basis was traceable to Art. 162, par. 2, letter x).

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[202] International Seabed Authority Council, Statement of the President of the Council of the International Seabed Authority on the work of the Council during the seventeenth session, 21 July 2011, ISBA/17/C/21, para. 15.

[203] International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to an environmental management plan for the Clarion-Clipperton Zone, 21 July 2011, ISBA/17/C/19, para. 3.

[204] International Seabed Authority Council, Status of the environmental management plan for the Clarion-Clipperton Zone, 17 July 2012, ISBA/18/C/11, para. 4. International Seabed Authority Council, Legal and Technical Commission, Report on informal consultations between contractors and the Secretariat, Kingston, 9-11 January 2012, 18 April 2012, ISBA/18/LTC/3.

[205] International Seabed Authority Council, Status of the environmental management plan for the Clarion-Clipperton Zone, 17 July 2012, ISBA/18/C/11, para. 8.

[206] International Seabed Authority Council, Legal and Technical Commission, Environmental Management Plan for the Clarion-Clipperton Zone, 13 July 2011, ISBA/17/LTC/7, para. 46.

[207] International Seabed Authority Council, Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone, 26 July 2012, ISBA/18/C/22.

The Council excluded the exploitation of areas that showed a risk for damage to the marine environment[208]. The granting of licenses the risk of damage, serious damage and the marine environment in areas under consideration have the possibility of the power conferred and in disposition (Jaeckel, 2017) thus identifying what the Council itself has established:

> "(…) policies to be pursued by the Authority on any question or matter within the competence of the Authority (...)"[1].

The Authority adopted measures to ensure the protection of the marine environment for harmful effects in the activities of the area according to Art. 145 UNCLOS also establishing APEI where:

> "(…) appropriate and necessary measures referred to in the provision just recalled (…)" (Lodge, 2011)[2].

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[208] According to article 162, par. 2, lett. x) it is affirmed that: "(...) the Council shall: disapprove areas for exploitation by contractors or the Enterprise in cases where substantial evidence indicates the risk of serious harm to the marine environment (…)".

[1] Art. 161, par. 1 UNCLOS affirms that: "(…) The Council is the executive organ of the Authority. The Council shall have the power to establish, in conformity with this Convention and the general policies established by the Assembly, the specific policies to be pursued by the Authority on any question or matter within the competence of the Authority (…)".

[2] Lodge affirms that: "(...) no requirement that such a network be established through regulations. Indeed, the best, and most flexible, way in which this could be done is through a resolution or decision of the Council. This was the approach taken by OSPAR in relation to the establishment of a protected area in the Charlie Gibbs Fracture Zone on the Mid-Atlantic Ridge. In that case, the OSPAR Contracting Parties took a decision to establish a marine protected area in the waters superjacent to the Charlie Gibbs Fracture Zone (OSPAR Decision 2010/2) and at the same time adopted a separate resolution (OSPAR Recommendation 2010/13) adopting a

The Commission stated in this regard that:

> "(…) recommendations to the Council on the protection of the marine environment, taking into account the views of recognised experts in the field (…)" (Dang, 2022)[3].

This is a procedure that the REMP implemented to create the APEI, as a support body for the related recommendations for the protection of the marine environment and suggesting independent experts with the tasks of checking, validating and collaborating.

The Authority now plays an environmental policy role with binding legal effects[4]. The Council decision according to the former Art. 145 UNCLOS measured the protection of the marine environment and made the contents binding. The moratorium for the exploitation of the APEI has decided that:

> "(…) for a period of five years from the date of the present decision or until further review by the Legal and Technical Commission or the Council, no application for approval of a plan of work for exploration or exploitation should be granted in areas of particular environmental interest referred to (...)"[5].

The Commission has not recommended to the Member States and the Council any plan for exploration, exploitation that

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management framework for the protected area setting out the conservation objectives, the understanding of the Parties relating to the conduct of human activities in the protected area, the need for environmental impact assessments to be conducted prior to any activity and a framework for monitoring of implementation (…)".

[3] According to Art. 165, par. 2, lett. e) UNCLOS it is affirmed that: "(…) make recommendations to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field (…)".

[4] International Seabed Authority Council, Relationship between the draft regulations on exploitation of mineral resources in the Area and regional environmental management plans, 20 December 2018, ISBA/25/C/4, para. 4.

[5] International Seabed Authority Council, Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone, 26 July 2012, ISBA/18/C/22, preamble.

coincides with the APEI. Section 13 of the standard clauses concerned the settlement contract and exploration. Art. 3 of the exploitation code thus respected the obligations imposed and adopted by the Council[6] including the precise obligations for the REMP and the related decision imposed on them[7]. The plan included and limited a series of recommendations for the area that identified the plan also involving the activity of the area and highlighting that:

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[6] "(…) shall carry out exploration in accordance with the terms and conditions of this contract, the Regulations, Part XI of the Convention, the Agreement and other rules of international law not incompatible with the Convention. 13.2 The Contractor undertakes: (a) To accept as enforceable and comply with the terms of this contract; (b) To comply with the applicable obligations created by the provisions of the Convention, the rules, regulations and procedures of the Authority and the decisions of the relevant organs of the Authority; (c) To accept control by the Authority of activities in the Area as authorized by the Convention; (d) To fulfill its obligations under this contract in good faith; and (e) To observe, as far as reasonably practicable, any recommendations which may be issued from time to time by the Legal and Technical Commission. 13.3 The Contractor shall actively carry out the programme of activities: (a) With due diligence, efficiency and economy; (b) With due regard to the impact of its activities on the marine environment; and (c) With reasonable regard for other activities in the marine environment. 13.4 The Authority undertakes to fulfill in good faith its powers and functions under the Convention and the Agreement in accordance with article 157 of the Convention (…)".

[7] International Seabed Authority Council, The environmental management plan in the regulatory framework for mineral exploitation in the Area, 3 June 2014, ISBA/20/C/13, Annex, parr. 7-8: "(…) obligations for the contractor should entail at least the following components: (a) Prior environmental impact assessment: prior assessment of activities that may have significant adverse impacts on the environment; (b) Environmental impact assessment: a process of evaluating the likely environmental impacts of a proposed project or development taking into account interrelated socioeconomic, cultural and human health impacts, both beneficial and adverse; (c) Procedural steps to complete the prior environmental impact assessment/environmental impact assessment (minimum requirements/standards/components): (i) Screening: for example, which activities may have significant adverse impacts on the environment; (ii) Scoping: for example, evaluating the likely environmental impacts of a proposed project (for example, which technology will be applied by the contractor); (iii) Assessing and evaluating impacts and development of alternatives; (iv) Reporting of the Environmental Impact Statement (to include cumulative effects); (v) Reviewing: for example, possible alternatives; opportunities for damage prevention; mitigation of adverse impacts; (vi) Decision-making: regarding implementing/applying the environmental impact assessment as a component of the compulsory environmental management plan (including the designation of areas of particular environmental interest where mining would not take place); c (vii) Monitoring, compliance, enforcement and

> “(...) recommendations are not expressed in the form of binding legal obligations (...)”[8].

From the side of REMP some ad hoc measures are kept for the application of areas that had to do with the Clarion-Clipperton fracture and not prohibited to activities.

The related plan referred to the conservation and management objectives for the nine IEAs that are identified in time (Lodge, 2011)[9]. These are marine areas that are protected through scientific criteria that are internationally recognized[10]. Exploration and exploitation operations are open to scientific research and presented to the ecological diversity of the regional level[11].

Distinguishing between APEI and PRZ, we can say that as a basis of overlap between the two concepts is the terminology used especially in the former (Lodge, 2011), where establishing

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environmental auditing (feedback) (…)”.

[8] International Seabed Authority, Relationship between the draft regulations on exploitation of mineral resources in the Area and regional environmental management plans, 20 December 2018, ISBA/25/C/4, para. 4.

[9] International Seabed Authority Council, Legal and Technical Commission, Environmental Management Plan for the Clarion-Clipperton Zone, 13 July 2011, ISBA/17/LTC/7, Annex I, figure II.

[10] International Seabed Authority Council, Legal and Technical Commission, Environmental Management Plan for the Clarion-Clipperton Zone, 13 July 2011, ISBA/17/LTC/7, para. 26.

[11] International Seabed Authority Council, Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone, 26 July 2012, ISBA/18/C/22, parr. 8-9.

APEI meant preservation reference area but not dissimilar from PRZ. The secretariat was able to report the relative risk for the commission and evaluate the use for the environmental sanctuary zones[12], which are converted into the form of APEI. Already in 2021 the Commission tried to establish completion deferrals for the relative review (Lodge, 2017)[13], thus, confirming the conservation measures for APEI and recommended for the establishment[14].

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[12] International Seabed Authority Council, Legal and Technical Commission, Proposal for the designation of certain geographical areas in the Clarion-Clipperton Fracture Zone, 11 March 2009, ISBA/15/LTC/4, para. 14.

[13] International Seabed Authority Council, Legal and Technical Commission, Review of the implementation of the environmental management plan for the Clarion-Clipperton Fracture Zone, 17 June 2016, ISBA/22/LTC/12, para. 13; International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-sixth session: Addendum, 25 September 2020, ISBA/26/C/12/Add.1; International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the first part of its twenty-fifth session, 25 March 2019, ISBA/25/C/19, parr. 21 and 23,which is affirmed that: "(...) Commission formed a working group to address a range of issues raised under this agenda item, in order to provide guidance on the steps and priorities for future work activities to be undertaken by the secretariat. On 13 March 2019, the Commission considered a report of the working group on the results of the discussion, including the status of activities undertaken so far and the progress expected by 2021 regarding the implementation of the environmental management plan, as well the lessons that had been learned from the implementation of the plan that could be applied to the future development of regional environmental management plans in the Area (…)". International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at the first part of its twenty-fifth session: Addendum, 11 July 2019, ISBA/25/C/19/Add.1, para. 28; International Seabed Authority Council, Implementation of the decision of the Council in 2016 relating to the summary report of the Chair of the Legal and Technical Commission, 5 July 2017, ISBA/23/C/8, parr. 18-23; International Seabed Authority Council, Report of the Chair of the Legal and Technical Commission on the work of the Commission at its session in 2017, 9 August 2017, ISBA/23/C/13, parr. 27-28; International Seabed Authority Council, Decision to the Council of the International Seabed Authority relating to the report of the Chair of the Legal and Technical Commission, 14 Augusr 2017, ISBA/23/C/18, para. 15; eInternational Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the summary report of the Chair of the Legal and Technical Commission, 19 July 2016, ISBA/22/C/28 parr. 8-9.

The recommendation did not arrive and the creation due to the circumstance totally overlapped the areas granted and remaining for unilateral exploration especially from the level of the United States of America and the application of national legislation. The relevant licenses were based on activities that have to do with the sea and the risk reached conservation thus establishing the REMP as the implementation of activities outside the regulatory framework of the Authority[15].

Towards an integration of environmental management plans for provinces of mining interest

It was the Council that asked the Commission to proceed with the development of environmental management plans[16] and especially after Resolution no. 68/70 of 2013, where the General Assembly of the UN asked the Authority to:

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[14] International Seabed Authority Council, Review of the implementation of the Environmental Management Plan for the Clarion-Clipperton Zone, 1st June 2021, ISBA/26/C/43, para. 27 (a).

[15] International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the review of the environmental management plan for the Clarion-Clipperton Zone, 10 December 2021, ISBA/26/C/58.

[16] International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the summary report of the Chair of the Legal and Technical Commission, 23 July 2014, ISBA/20/C/31, para. 9; International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the summary report of the Chair of the Legal and Technical Commission, 21 July 2015, ISBA/21/C/20, para. 10; International Seabed Authority Council, Decision of the Council of the International Seabed Authority relating to the summary report of the Chair of the Legal and Technical Commission, 19 July 2016, ISBA/22/C/28, para. 11; International Seabed Authority Council, Decision to the Council of the International Seabed Authority relating to the report of the Chair of the Legal and Technical Commission, 15 August 2017, ISBA/23/C/18, para. 16.

> “(…) consider developing and approving environmental management plans in other international seabed area zones, in particular where there are currently exploration contracts (...)”[17].

Thus, the Authority has witnessed an increase in the number of work plans for exploration of public and private entities since 2021. The same organization has tried to stipulate contracts that concerned polymetallic nodules, and unknown deposits that have had mainly commercial interest.

The adoption of the REMPs[18] especially in the mid-Atlantic sector, which were noted in the Rodrigues in the Indian Ocean, the Hawaii-Emperor submarine chain which was in the Pacific Ocean and the submarine chains that carried out work in the South Atlantic[19], put the Secretary-General to an implementation plan relating to the strategy of a rich programme for the collection of baselines carried out in 2020[20]. The new REMPs referred to:

> “(...) approach and standardised methodologies for the development of regional environmental management plans, including with regard to preparatory scientific and technical work in advance of workshops on

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[17] United Nations General Assembly, Oceans and the Law of the Sea, 9 December 2013, A/RES/68/70, para. 51. United Nations General Assembly, Oceans and the Law of the Sea, 29 December 2014, A/RES/69/245, para. 51.

[18] International Seabed Authority Council, Preliminary strategy for the development of regional environmental management plans for the Area, 16 January 2018, ISBA/24/C/3.

[19] International Seabed Authority Council, Statement by the President of the Council on the work of the Council during the first part of the twenty-fourth session, 13 March 2018, ISBA/24/C/8, para. 9.

[20] International Seabed Authority, Report Of The Workshop On The Regional Environmental Management Plan For The Area Of The Northern Mid-Atlantic Ridge.

regional environmental management plans (...)”[21].

The Secretariat was based on a research entitled: Guidance to facilitate the development of Regional Environmental Management Plans[22]. It clarified the roles and responsibilities that the Authority bodies developed at regional level, namely the relative link between the REMP and the Mining Code as an approach that identified the APEI and the strategy for collecting the related data developed for the plans[23]. Through a new REMP the Authority[24] sought to create for the Council after recommendation of the Commission an Expert Committee:

> “(…) as a technical body of the Legal and Technical Commission and (...) characterised as an ad hoc committee that is assigned to develop and review one regional environmental management plan for a specific region (…)”.

It provided the Committee with an expert ody on biodiversity, the functioning of the ecosystem of benthic and pelagic communities.

The Expert Committee, within an institutional framework of the Authority, as a support body based on the model of the Commission and the Financial Committee, clarified in a permanent and limited manner the functions that they attributed to the REMP. Thus, the experts could guarantee the relevant access to the data, that are collected with the possibility of organizing next to the secretariat worthy topics for the deepening and the purpose of data available for the authority. The Committee placed the REMP to the Commission specifying what the stakeholders have consulted. The relevant plan was open to public consultation and after the support body made comments and the Commission recommended to the Council the adoption of the REMP, asking the Expert Committee to verify the contents.

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[21] International Seabed Authority Council, Implementation of the Authority’s strategy for the development of regional environmental management plans for the area, 28 January 2019, ISBA/25/C/13, para. 7 (b).

[22] International Seabed Authority, Guidance to facilitate the development of Regional Environmental Management Plans (REMPs), November 2019.

[23] International Seabed Authority Council, The environmental management plan in the regulatory framework for mineral exploitation in the Area, 3 June 2014, ISBA/20/C/13, parr. 2-6.

[24] International Seabed Authority Council, Procedure for the development, approval and review of regional environmental management plans, 6 January 2020, ISBA/26/C/6.

The experts provided the results to the Council through new data collected available for further scientific work. The Council as an executive body asked for the revision of other conditions, that were available through information relevant for the exploitation of minerals other than the REMP. The relevant information for scientific research established a delimitation in the area, which found application in the collection of environmental data with reference to the geophysical, chemical, biological character according to the indications relating to the recommendations.

The relative model established the information and activities carried out. It has limited national jurisdiction and included the cumulative impact for anthropogenic activities thus establishing the extractive consequences for an intense area and with competitive developments. The REMP has indicated the relative objectives of a regional nature, where the targets measured with a managerial and appropriate way the establishment of APEI, designating areas favorable for exploitation and areas of conflict risk for other uses of a legitimate nature.

The REMP model thus concludes with an advanced level strategy through knowledge based on ecosystems and cooperation between states monitored the development of new EMMPs.

The Council created working groups informally and with the final objective of negotiating and determining the analyses by the same Commission that left discretion according to the principles established by the Secretariat. The Commission thus considered that the aid body as appropriate[25]. In practice, it has obliged to a final assessment and finding the related agreement incorporated on clauses referred to. The Commission did not provide details for the use of advanced proposals and environmental management in the mid-Atlantic area.

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[25] Earth Negotiations Bulletin, Summary of the Twenty-sixth Annual Session of the International Seabed Authority (First Part): 17-21 February 2020, Vol. 25 No. 224, 24 February 2020. "(…) Council designated a small group, led by Germany, to work on this matter with a view to return to this in plenary. On Thursday, Germany reported that a draft decision (ISBA/26/C/ CRP.4) on further work on the issue had been circulated. Noting broad support for the proposals, one regional group, supported by many, requested deleting a reference to "as appropriate," with regard to a paragraph referencing the LTC taking into account the proposals in further developing REMPs guidance. Some other delegates asked to retain "as appropriate" so as to give the LTC more discretion on how to consider the proposals. Another delegate proposed clarifying that the various elements listed in the provision are to be taken into account by the LTC in developing a standardized approach. One observer, with broad support from delegates, urged that the LTC base its discussions on these proposals, and that these discussions be held in an open session. Some delegations indicated they required further instructions from capitals. On Friday morning, delegates agreed to adopt the draft decision on REMPs as initially proposed, without amendment (…)". International Seabed Authority Council, Decision of the Council concerning a standardized approach for the development, approval and review of regional environmental management plans in the Area, 21 February 2020, ISBA/26/C/10.

Concluding remarks

The marine environment, through protection and safeguard instruments, that are developed by the same Authority, has highlighted, that the implementation of the organization, has progressed towards projects of analysis and preservation of the related ecosystems of our planet, and through an extensive interpretation of its mandate[26].

The authority protected the environment in a restrictive manner by exploring and exploiting the area, within a regulatory framework, that constituted in a detailed manner every existing area that goes beyond national jurisdiction, as a model, which regulated the implementing agreements of the UNCLOS.

We can talk about a system that tried to cover and fill gaps at the embryonic stage of activities. The Authority tried to regulate political, social, economic conditions at a global level. It is an effort that made available an extractive code, where the guidelines and standards guaranteed the regulations for flexible exploitation, that is, capable of a high level of environmental

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26International Seabed Authority Assembly, Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea, 7 June 2002, ISBA/8/A/5, parr. 51-52.

protection.

The Authority has operationalized many precise procedural and substantive features by selecting the BAT and BEP and with maximum commitment to identify the comparison to an offshore oil and gas sector as an adaptive application. As a learning-by-doing process that slowed down the commercial exploitation of minerals and that responded to the gradual development of economic needs for environmental protection, has applied a small-scale exploitation test that provided data, sufficient information for the risks associated with the commercial extraction of minerals.

Authority and Council gave opportunity in generalizing the relative moratorium for mining activities as a consequence that applied the precautionary principle and also provided for the establishment of IAPs within the relative scope of the REMPs. The Authority has implied and deprived the relative mandate that attributed to the UNCLOS, that is, the outcome that pursued the revision of a regime, where according to Part XI operated according to the procedures provided for by the UNCLOS[27].

Mining exploitation continued the constraints for environmental protection and the organization, application of principles. The implementation tools for mining activities are presented for the guarantees and protection of the marine environment according to the case-by-case assessment of the Council and the Commission.

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[27] Workshop Deep seabed environmental management and monitoring, which is affirmed that: "(…) there are those who oppose any form of deep sea mining anywhere. This is an overly simplistic approach that is neither based on good science nor on international law. In fact, it directly undermines the unique governance system that states have worked together for more than 40 years to put in place. That is why I welcome the recent commitment by G20 Environment Ministers to support the development by ISA of international regulations in line with the precautionary approach that result in the effective protection of the marine environment (…).

The Authority as we have seen has also taken a position in the field of EIA. The continuous gaps at international and European level could be filled through mining exploitation and within the context of seabeds that are represented at a first attempt internationalized. The relative procedure was limited the margin of discretion enjoyed by states that objectively evaluated the Commission of the Authority. The continuous evaluations, the basic principle of who pollutes pays clarified measures for the liability of damages, the accidental nature, the standard of liability and the damage that was compensable.

The development of standard contractual clauses were subject to review by member states and the Council. The Authority in recent years recognized the priority to ensure in a holistic manner the protection of the marine environment and assess the implications of a liability regime, as a subject that operates in the area that supervises its own institution.

The Authority has defined marine protected areas through exploration and mineral exploitation thus reconnecting the developments of new agreements through the UNCLOS, which dedicated to its parties a form of coordination for regional and sectoral actors through an achievement of an objective, which preserved the organizations that were part.

The geographical management of areas especially in the high seas favored organizations for the seabed beyond national jurisdiction, that constituted a common heritage of humanity, as well as measures that worked to protect the authority, as a global organization, which played a coordinating role for the protection of biodiversity beyond domestic jurisdiction, as a challenge for the coming years.

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